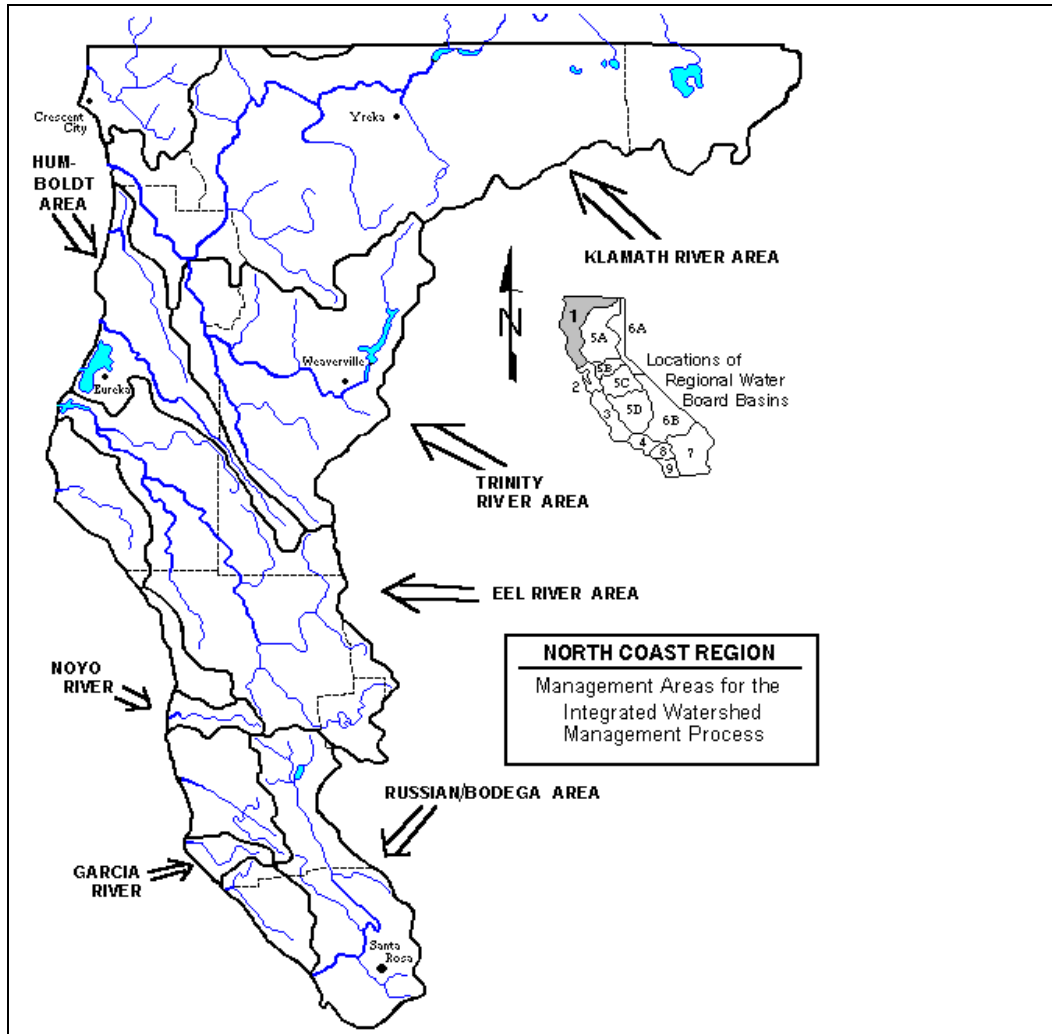


North Coast Regional Water Quality Control Board

Watershed Planning Chapter



March 28, 1996
November 5, 1996
January 10, 1997
May 21, 1997
May 15, 1998 revision
January 7, 2000

Lee A. Michlin, Executive Officer

Regional Water Quality Control Board
 North Coast Region
 5550 Skylane Boulevard, Suite A
 Santa Rosa, CA 95403
 (707) 576-2220

TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
Executive Summary	iii
 Section 1 - Introduction	
Brief description of the Chapter and the integrated approach for addressing water quality management in the Region	1
 Section 2 - Watershed Activities	
2.0 <u>Background</u> - explanation of the integrated watershed management approach for the six Watershed Management Areas (WMAs) in the Region. Each WMA plan includes statements of concerns and issues, water quality goals and an implementation strategy	9
2.1 <u>Russian/Bodega Watershed Management Area</u>	10
Appendix 2.1-A - Partial list of agencies and groups in the Russian/Bodega WMA	33
Appendix 2.1-B - Monitoring and assessment priorities and needs for the Russian/Bodega WMA	36
2.2 <u>Klamath Watershed Management Area</u>	38
Appendix 2.2-A - Partial list of agencies and groups in the Klamath WMA	51
Appendix 2.2-B - Monitoring and assessment priorities and needs for the Klamath WMA	53
2.3 <u>North Coast Rivers Watershed Management Area</u>	54
2.3.5 Noyo River Watershed	55
Appendix 2.3.5-A - Partial list of agencies and groups in the Noyo River watershed	60
Appendix 2.3.5-B - Monitoring and assessment priorities and needs in the Noyo River watershed	61
2.3.8 Navarro River Watershed	62
Appendix 2.3.8-A - Partial list of agencies and groups in the Navarro River watershed (blank).....	65
Appendix 2.3.8-B - Monitoring and assessment priorities and needs in the Navarro River watershed ..	66
2.3.9 Greenwood Creek Watershed	67
2.3.11 Garcia River Watershed	68
Appendix 2.3.11-A - Partial list of agencies and groups in the Garcia River watershed	73
Appendix 2.3.11-B - Monitoring and assessment priorities and needs in the Garcia River watershed ...	76
2.3.12 Gualala River Watershed	77
Appendix 2.3.12-A - Monitoring and assessment priorities and needs in the Gualala River watershed ..	82

2.4	<u>Humboldt Bay Watershed Management Area</u>	83
	Appendix 2.4-A - Partial list of agencies and groups in the Humboldt WMA	97
	Appendix 2.4-B - Monitoring and assessment priorities and needs for the Humboldt WMA	99
2.5	<u>Eel River Watershed Management Area</u>	100
	Appendix 2.5-A - Partial list of agencies and groups in the Eel WMA	112
	Appendix 2.5-B - Monitoring and assessment priorities and needs for the Eel WMA	114
2.6	<u>Trinity River Watershed Management Area</u>	115
2.7	<u>Clean Water Action Section 303(d) (TMDLs)- This section of the Clean Water Act requires listing of waterbodies not meeting water quality standards and prioritization of those waterbodies for waste reduction activities.....</u>	117
	Table 2.7-1. Summary schedule for Total Daily Maximum Load Development	118
	Table 2.7-2. Detailed Schedule of TMDL Activities (1998-2002)	126
	Table 2.7-3 Detailed TMDL Task Schedule.....	133

Section 3 - Non-watershed Based Activities

Activities not prioritized on a watershed basis or not included
in a targeted watershed are explained and prioritized here..... 154

Section 4 - Budget

The Region's best estimate of resource allocations for FY 2000-01
and the distribution across watershed and non-watershed activities,
as well as projections for an additional four years 157

Appendix A - Partial Inventory of Work Activities

This table contains listings of NPDES and waste discharge
requirement reissuance dates, compliance inspection scheduling,
and Water Quality Control Plan (Basin Plan) scheduling

Appendix B - Beneficial Use Definitions

The beneficial uses from the Water Quality Control Plan for
the North Coast Region are included here

Appendix C - Geographic Information Systems Discussion

Appendix D – Nonpoint Source Tables

**NORTH COAST REGION
WATERSHED MANAGEMENT INITIATIVE CHAPTER
JANUARY 21, 2000**

EXECUTIVE SUMMARY

The water resource protection efforts of the State Water Resources Control Board and the Regional Water Quality Control Boards are guided by a five year Strategic Plan (updated in 1997). A key component of the Strategic Plan is a watershed management approach for water resources protection.

To protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. These complex relationships present considerable challenges to water resource protection programs. The State and Regional Boards are responding to these challenges with the Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and ground water regulatory programs while promoting cooperative and collaborative efforts within watersheds. It is also designed to focus limited resources on key issues.

Past State and Regional Board programs tended to be directed at site-specific problems. This approach was reasonably effective for controlling pollution from point sources. However, with diffuse nonpoint sources of pollutants, a new regulatory strategy was needed. The WMI uses a strategy to draw solutions from all interested parties within a watershed, and to more effectively coordinate and implement measures to control both point and nonpoint sources.

During initial implementation of the WMI, each Regional Board identified the watersheds in their Region, prioritized water quality issues, and developed watershed management strategies. These strategies and the State Board's overall coordinating approach to the WMI are contained in the Integrated Plan for Implementation of the WMI.

The Watershed Management Initiative is intended to support the Goals in the Strategic Plan to:

1. preserve, enhance and restore water resources while balancing economic and environmental impacts
2. promote cooperative relationships and to improve support for the regulated community and the public
3. encourage balanced and efficient use of water through water transfers, recycling and conservation
4. continuously improve internal efficiency and effectiveness
5. establish a more stable, and flexible mix of funding sources

Most State and regional board programs are funding driven and directed at categories of problems. Traditional program management can be near-sighted, focused only on the program goals and outputs without obvious relationships to other problems. Added to the mix are "unfunded mandates," those tasks that are required or requested, but without attendant funding.

Addressing water resource issues on a watershed basis is founded in determining the problems and needs independently of funding sources. In this way the analysis of problems and needs and their prioritization is unencumbered by program constraints. The melding of the pure analysis of needs and relationships in a watershed with programs presents an administrative challenge. But in these lean times, priorities by watershed provide a good framework for ensuring that staff and contract resources are applied to the most important issues first.

Addressing problems on a more holistic basis with a collaborative approach involving landowners and other agencies in a watershed represents a new and challenging role for government. The WMI seeks to facilitate solutions from all interested parties in a watershed, and coordinate measures to improve watershed health, and ultimately the beneficial uses of water.

Each regional board has identified watersheds in their region, prioritized water quality issues, and developed their own watershed management strategies. Each region's strategy is then a "chapter" in the statewide plan. This document constitutes the North Coast Region's WMI Chapter for that integrated statewide plan.

The North Coast region, which comprises all basins draining into the Pacific Ocean from the California-Oregon state line (including Lower Klamath Lake and Lost River Basins) southerly to the southerly boundary of the watershed of the Estero de San Antonio and Stemple Creek in Marin and Sonoma Counties. The North Coast Region covers all of Del Norte, Humboldt, Trinity, and Mendocino Counties, major portions of Siskiyou and Sonoma Counties, and small portions of Glenn, Lake, and Marin Counties. The North Coast Region encompasses a total area of approximately 19,390 square miles, including 340 miles of scenic coastline and remote wilderness areas, as well as urbanized and agricultural areas.

The North Coast Region is characterized by distinct temperature zones. Along the coast, the climate is moderate and foggy and the temperature variation is not great. For example, at Eureka, the seasonal variation in temperature has not exceeded 63 F for the period of record. Inland, however, seasonal temperature ranges in excess of 100 F have been recorded.

Precipitation over the North Coast Region is higher than for any other part of California, and damaging floods are a fairly frequent hazard. Particularly devastating floods occurred in the North Coast area in December of 1955, in December of 1964, and in February of 1986. Ample precipitation in combination with the mild climate found over most of the North Coast Region has provided a wealth of fish, wildlife, and scenic resources. The mountainous nature of the Region, with its dense coniferous forests interspersed with grassy or chaparral covered slopes, provides shelter and food for deer, elk, bear, mountain lion, furbearers and many upland bird and mammal species. The numerous streams and rivers of the Region contain anadromous fish, and the reservoirs, although few in number, support both coldwater and warmwater fish.

Tidelands, and marshes too, are extremely important to many species of waterfowl and shore birds, both for feeding and nesting. Cultivated land and pasture lands also provide supplemental food for many birds, including small pheasant populations. Tideland areas along the north coast provide important habitat for marine invertebrates and nursery areas for forage fish, game fish, and crustaceans. Offshore coastal rocks are used by many species of seabirds as nesting areas.

Major components of the economy are tourism and recreation, logging and timber milling, aggregate mining, commercial and sport fisheries, sheep, beef and dairy production, and vineyards and wineries.

To assist in the WMI process, six watershed management areas (WMAs) were designated in the Region: Klamath River, Trinity River, Humboldt, Eel River, Russian/Bodega, and North Coast Rivers. The Region began with a rotating basin approach, applying a sequential planning process to each WMA on a rotating basis. They would first be assessed and problems, issues and concerns identified using an in-house watershed team and public meetings in the WMA. Goals and actions to address the goals would be strategized and an implementation phase would follow. The end of the cycle would be an evaluation step that would feed into the next assessment.

It soon became clear that staff resources were not sufficient to perform all the steps within the original time frame. While we are still maintaining a schedule for rotations, the level to which each element is developed is dependent on funding. As a result, the individual WMA sections within the Chapter vary in depth and timing.

In general, the process has improved communication within the office and in some watersheds has improved communication amongst agencies and the public. We now have documented in this Chapter numerous issues and problems as well as ideas to address them. There are assignments of relative importance

(priority) for those actions and budget information to assist in redirecting resources or requesting new resources.

The North Coast Region faces several water quality issues. The highest priority water quality problems include contamination of surface water due to nonpoint source pollution from stormwater runoff, erosion and sedimentation (roads, vineyards, timber harvest), channel modification, gravel mining and dairies, and MTBE and dioxin contamination. Ground water contamination from leaking underground tanks and health and safety issues from contaminated areas that are open to the public are also priority issues. High priority water quality problems due to point sources include chronic violations by POTWs and lack of permit compliance. Lack of funding for water quality monitoring and watershed assessment compounds the difficulty of addressing these issues.

The highest priority activities to address those problems include:

- maintaining the core regulatory program for regulated dischargers
- increasing emphasis on stormwater runoff issues
- increasing monitoring and assessment activities
- increasing emphasis on nonpoint source issues (including forestry), especially as they affect salmonid resources
- developing and implementing Total Maximum Daily Load strategies (mostly sediment and temperature associated with salmonid resource declines)
- improving outreach and community involvement in decisions
- fostering watershed groups and volunteer monitoring

To advance implementation of the WMI the North Coast Region has reorganized along watershed lines. The reorganization process is two phased. Phase one commenced at the beginning of FY 99 – 00 by forming three new office divisions: 1) the Timber Harvest Division, 2) the Cleanup and Special Investigation Division and 3) the Watershed Protection Division. The Timber Harvest Division and Watershed Protection Division each include four technical units that arranged by watershed. The Cleanup and Special Investigation Division is made up of three technical watershed units and the office wide administrative unit.

In phase two, units from all three of the divisions will be rearranged so that each division is a Watershed Protection Division which deals with all issues within a specific group of watersheds. We expect that this transition will occur over the next two or three years.

To help implement our intended transition to a watershed organization, we have integrated, to the extent possible, all of our programs along watershed lines. The budget process, planning for permits, inspections and enforcement are largely driven by watershed needs. The creation of our new watershed divisions was influenced by needs within watersheds and the division of program resources to address those needs.

The North Coast Regional Water Quality Control Board sets staff priorities each FY. Those priorities are generally organized in relation to watershed needs, however, the Regional Board will take all factors into account in setting final priorities. Most legislative mandates do not take watershed needs into account. However, the Regional Board usually exercises appropriate discretion within programs to assure that resources are applied where needs are the greatest.

Funded versus unfunded planned actions to address key issues – Where unfunded activities are necessary to protect water quality the Board may use discretionary resources, in a limited fashion, to address those needs. When needs are established the Board seeks new resources to address water quality issues. An example is the Board's hillside vineyard program. Vineyard activity on hillsides can adversely affected water quality do to sedimentation. In previous years, no program existed to address the issue short of after-the-fact enforcement. Nonpoint source funds were sought and received to address the issue. Now the Board has an

outreach program to help prevent problems before they happen and enforcement is still available where needed.

As we continue the transition to a watershed-oriented region, we expect the budgeting process to become driven by watershed needs and priorities. Currently, nonpoint source issues are at the fore front. Point source needs also need additional resources, especially in relation to recent legislation that is expected to increase monitoring, inspections and enforcement.

In the Russian/Bodega WMA (pages 10 - 37) the primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. We will continue our program of investigation and follow-up of spills and complaints regarding water quality problems. Discharges of petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment are the primary pollutants of concern.

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. The nonpoint source issues are more difficult to address due to their diffuse nature. We have increased our emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement. The primary concerns include sedimentation, nutrients, and riparian destruction.

In the Klamath WMA (pages 38 - 53) the following broad goals provide a focus for water quality control activities: 1) protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate), 2) protect and enhance warmwater and endangered aquatic species, 3) maintain the viability of agriculture and timber uses, 4) maintain recreational opportunities, and 5) protect groundwater uses.

In the North Coast River WMA (pages 54 - 82) the overall emphasis is the inspection of timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our timber harvest program activities on private land in concert with California Department of Forestry and Fire Protection. The future development of TMDL waste reduction strategies for sediment are another primary activity by Regional Board staff.

In the Humboldt Bay WMA (pages 83 - 99) the following broad goals provide a perspective from which to view the specific goals and actions presented Section 2.4: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect surface and ground water uses for municipal supply, recreation, and industrial shellfish harvest, and 3) protect and enhance the anadromous salmonid resources.

In general, the primary issues associated with water quality in the Eel River WMA (pages 100 - 114) are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery. Since the watershed is located in steep forested terrain with highly erosive soils and high rainfall, erosion and sediment production and transport are high. For most of the watershed the issues of temperature and sedimentation and their impacts on the salmonid fishery are of high concern, involving the timber and rangeland industries. Other issues include ground water contamination, dairies in the delta area near the ocean, and localized contamination of surface and ground waters.

Section 4 of the Chapter contains our best knowledge of FY 2000-01 funding as of January 2000 and a table that projects needs four years beyond the base year of 2000-01.

For more information or copies of the Chapter, contact Janet Blake at 707-576-2805 or blakj@rbl.swrcb.ca.gov.

SECTION 1

INTRODUCTION

This document comprises the North Coast Region Water Quality Control Board's draft chapter for the Integrated Plan for Implementation of the Watershed Management Initiative (WMI). It covers a 5-year planning horizon. Fiscal year 1999-00 funding levels plus adjustments for known allocation changes were used as the baseline for resources (please refer to Section 4, *Budget* for more details).

The process for the North Coast Region (NCR) is responsive to the Watershed Management Initiative called for in the State Water Resources Control Board *Strategic Plan* (June 22, 1995). It essentially involves designating Watershed Management Areas (WMAs) and performing steps as described below:

- assessing water quality related issues on a watershed basis,
- developing prioritized water quality goals for watersheds from the issues,
- addressing the issues with various programs through a multi-year implementation strategy, and
- evaluating progress at the end of a specified time period.

This chapter is dynamic, and as such, represents the best information and strategy at the time of this writing and for the resources made available to develop it. Also recognize that this document is an administrative management tool, and by its very nature, must be flexible and responsive to the adaptive management required in addressing issues with changing priorities and new information.

Following is a description of each of the sections:

Section 1 - Introduction

This section briefly describes the Region's Chapter, and the integrated approach we propose for addressing water quality management in the Region.

Section 2 - Watershed Activities

- 2.0 Background - explanation of the integrated watershed management approach for the six Watershed Management Areas (WMA) in the Region. Each WMA plan includes statements of concerns and issues, water quality goals, and an implementation strategy.
- 2.1 Russian/Bodega Watershed Management Area
- 2.2 Klamath Watershed Management Area
- 2.3 North Coast Rivers Watershed Management Area
 - 2.3.3 Mattole River
 - 2.3.5 Noyo River
 - 2.3.6 Big River
 - 2.3.8 Navarro River
 - 2.3.9 Greenwood Creek
 - 2.3.11 Garcia River
 - 2.3.12 Gualala River
- 2.4 Humboldt Bay Watershed Management Area
- 2.5 Eel River Watershed Management Area
- 2.6 Trinity River Watershed Management Area
- 2.7 Clean Water Action Section 303(d) (TMDLs)- This section of the Clean Water Act requires listing of waterbodies not meeting water quality standards and prioritization of those waterbodies for waste reduction activities. Schedules for addressing Section 303(d) are included in two tables per direction received from the State Board in December of 1996.

Section 3 - Non-watershed Based Activities

Activities not prioritized on a watershed basis or not included in a targeted watershed are explained and prioritized here.

Section 4 - Budget

The Region's best estimate (January 2000) of resource allocations for FY 2000-01 and the distribution across watershed and non-watershed activities.

Appendix A - Partial Inventory of Work Activities

This table contains listings of NPDES and waste discharge requirement reissuance dates, compliance inspection scheduling, and Water Quality Control Plan (Basin Plan) scheduling.

Appendix B - Beneficial Use Definitions

Appendix C - Geographic Information System

Appendix D – Nonpoint Source Program Tables

The North Coast Region's Process

We are rotating through WMAs, dealing with three areas initially and rotating other areas into the process on a planned basis as resources allow. We believe that this is the best use of our resources at this time: to focus on a few WMAs at a time, cycling back through them every five to seven years. Having the cycle identified and the goals prioritized will make resource needs more apparent. The management areas are prioritized based on a number of factors, including the known water quality impairment, adequacy of existing data, the extent of development and/or land use change, likelihood for problems to increase, and the availability of management tools for the problems.

It is important to recognize that non-discretionary activities, such as issuing federal permits, will continue in the non-targeted watershed areas. Targeting of a watershed area is for the purpose of identifying issues and problems and developing an implementation strategy with public involvement. In addition, some programs may not lend themselves to targeting or prioritization on a watershed basis and will be dealt with on their own prioritization scheme.

One such issue is ground water. Though we include ground water related activities in the management plans, the full integration of ground water activities with surface water activities in the delineation by watershed is a developing process. We recognize the advantage of addressing ground water issues on a geographic basis, but have yet to fully integrate that concept into this process.

The vision on a statewide basis of the watershed-based process, is a yearly evaluation of the state board units' and regional boards' multi-year plans by a management team representing State Board, regional boards, and US EPA. The intent is to provide a multi-year perspective to all participants at the same time, thus avoiding multiple negotiations among the various participants at separate times. We anticipate this will streamline the process in addition to providing the integration of programs on a watershed basis and in a multi-year perspective.

The focus of the watershed-based effort is to assure all NCR activities are coordinated throughout a watershed in an efficient, integrated manner. Related land use issues will be addressed through self-determined "voluntary" compliance with appropriate enforcement if pollution events occur, per current practices. Water resources issues will be coordinated with appropriate state and federal agencies, such as the Division of Water Rights and Department of Water Resources.

For the purposes of this process, "management area" is the basic planning unit and may contain one or more drainage "basins" or "watersheds." The NCR Watershed Management Areas (WMAs) and their watersheds are depicted in Figure 1-1. They are:

- 2.1 Russian/Bodega WMA
- 2.2 Klamath WMA
- 2.3 North Coast Rivers WMA
 - 2.3.3 Mattole River
 - 2.3.5 Noyo River

- 2.3.6 Big River
- 2.3.8 Navarro River
- 2.3.9 Greenwood Creek
- 2.3.11 Garcia River
- 2.3.12 Gualala River
- 2.4 Humboldt Bay WMA
- 2.5 Eel River WMA
- 2.6 Trinity River WMA

Note that the "management areas" are on a different scale than the basins and hydrologic units specified in the *Water Quality Control Plan for the North Coast Region* (Basin Plan). This is a conscious effort to reduce the number of units within this process for reasonable assessment and budgeting. The individual watersheds and hydrologic units are not ignored and may be assessed at that finer level of resolution in the process.

The Regional Water Board activities to address issues and problems are prioritized in recognition of the reality that resource allocations change. As such, this process does not promise to address all issues within a specified time period, rather to assess and plan for each basin and deal with the issues on a priority basis.

The overall process involves first identifying and assessing the water quality problems in the basin, and second, developing a strategy to implement specific activities to address the identified problems. We propose to employ that process on a rotating basis, ensuring that each management area is assessed and a plan developed once within the cycle. Implementation of the resultant strategy is then scheduled according to the complexity of the issues and the tools and resources available to address the issues. Water quality goals to be addressed are prioritized and will be budgeted within the area's schedule. An evaluation step ends the cycle, providing feedback to the next cycle for a particular management area. It is important to recognize that one cycle can begin an activity that may carry into the next cycle. When the short-term goals are reached, the activities to address long-term goals are left in place, and another management area is addressed on a priority list. The planning document resulting from the process is a multi-year watershed management document for water quality activities.

Prioritizing management areas (and the basins or watersheds within them) may result in shifts in resources, which are identified within the management document. For instance, the decision may be made to divert part of the core regulatory activities from one area to another to address the short-term goal of reviewing all waste dischargers within the area once in a cycle.

It is important to recognize that presently specific mandated regulatory activities will not allow shifts in resources, and that some programs' priorities cannot be set on a geographic basis. Those activities will also be described in the document and listed for the priority areas. For example, the Eureka waterfront area is contaminated with a variety of metals, solvents, and petroleum products. It merits considerable staff effort in a coordinated multi-agency approach to describe the contamination, threats to beneficial uses of water, and options for remediation while allowing planned development to proceed. Those activities will proceed as a high priority for Regional Board resolution, regardless of the level of priority for the Humboldt Bay Management Area as a whole.

Additionally, addressing the ocean and near shore areas not included in harbors or bays in individual WMAs is a necessary part of the process. At this point we recognize that near shore areas may be affected by land-based activities in specific watersheds. We will attempt to determine the extent to which land-based activities are affecting ocean resources when data indicate ocean impacts. The watershed approach would be used to address the freshwater and land-based problems. Also, some form of regional or statewide ocean and near shore monitoring program should be supported.

The Rotating Approach

The Basin Plan identifies thirteen specific hydrologic units in the North Coast Region. However we consciously lumped hydrologic units into a more manageable number of management areas (Figure 1).

Each management area will be addressed through a sequential planning process: 1) identify issues, concerns and problems and assess the general watershed health, 2) strategize actions to address the identified issues, concerns, and problems, 3) implement those actions on a priority basis, and 4) evaluate the process and progress with feedback into the next cycle.. The original NCR plan was to sequence through the major steps for all areas on an eight-year cycle, individual areas taking four to six years. While a targeted WMA is receiving specific attention, the routine regulatory and monitoring activities continue to occur in non-targeted WMAs. For the NCR, the first areas in the process were the Russian/Bodega, Klamath, and Garcia rivers. Staffing levels and new priorities dictated by a TMDL lawsuit have shifted the rotation and varied the level of involvement or focus in some WMAs. Consequently, we are cycling through the WMAs as resources allow, the Trinity River being the major effort for FY 1999-2000 and FY 2000-2001 in terms of identifying issues and problems and strategizing approaches to address them. The sequential process is detailed below:

Problem Identification And Assessment

This process involves public meetings to identify concerns, review of existing water quality and land use data (including discharger self-monitoring, environmental documents, etc.) to describe existing and potential pollutants, and a comprehensive outline of the current institutional framework. A prioritized set of water quality goals should arise from this process.

Development Of An Implementation Strategy

Here we assign work tasks or activities and any additional institutional framework to achieve the goals for the management area. It may include a significant water quality sampling effort aimed at answering questions raised in the problem identification and assessment phase, logically focused on the identified needs and phased into the cycle for each particular watershed. Routine compliance monitoring would be included in the strategy, but independent of the individual watershed cycle. This section also contains significant narrative to describe the manner in which goals will be achieved. We expect public participation to play a significant role in the development of the strategy, especially considering the level of inter-agency and public interest group participation. The first phase of the watershed process is satisfied when activities are prioritized, and the resource needs for achieving the goals are prepared as the final products.

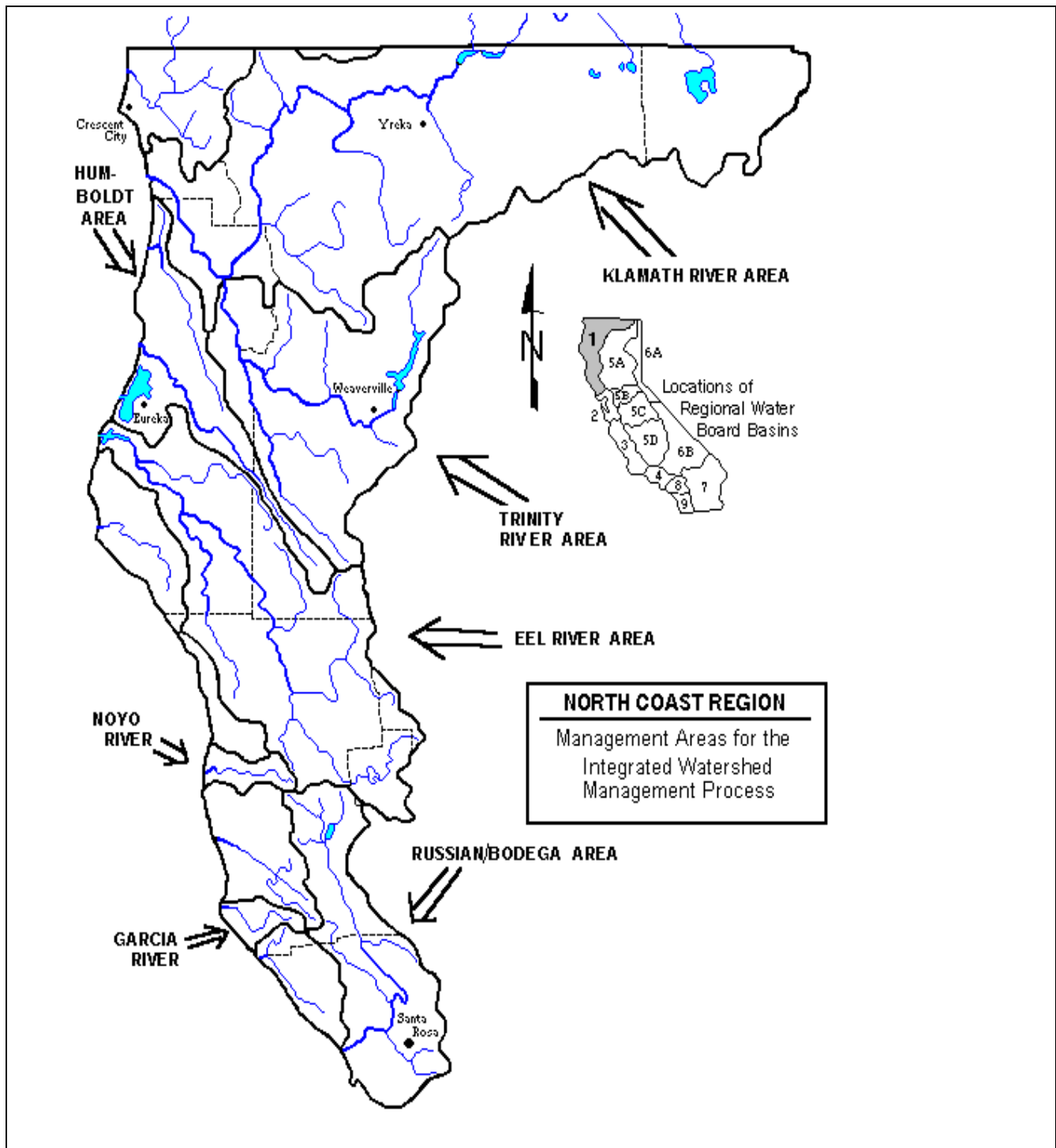
Implementation

Implementing the strategy starts the second phase of the process. The work efforts described in the strategy development phase are implemented on a time schedule. For example, the TMDL process for the Laguna de Santa Rosa requires work efforts associated with assessment, monitoring, core regulatory (permitting and compliance/ enforcement), nonpoint source, and local agency contracts (205(j) and 319(h) grants).

Evaluation Of The Implementation And A Feedback Loop

This will feed into the next cycle for the management area and is essential to achieving short-term goals, maintaining adequate controls to ensure long-term goals are met, and providing a mechanism for addressing emerging issues. Evaluation occurs through waterbody monitoring and inspections, both on-the-ground activities with direct assessments of waterbody condition. It is here that true ambient monitoring is applied apart from the watershed cycle to provide information on long-term trends. Periodic review of the strategy and its effectiveness combined with public participation also provides guidance for the future. The results of the periodic evaluation should be used to keep the activities on track; end-of-cycle evaluation feeds into future problem identification and assessment, providing a model for similar watersheds.

Figure 1. Watershed Management Areas for the North Coast Regional Water Quality Control Board's watershed planning process.



It is not expected that all issues within a WMA will be addressed in a single cycle. For that reason, the feedback loop is especially important in identifying issues that require work after the first cycle. It will form the basis for the prioritization of issues in the subsequent cycle. It identifies discrepancies between goals and actual accomplishments, allowing for redirection to address needed tasks where possible. Although the product of developing a strategy is the assignment of resources to address problems and achieve goals,

resource shifts may be limited by emergencies, other commitments, funding constraints and specific mandates.

The North Coast Region faces several water quality issues. The highest priority water quality problems include contamination of surface water due to nonpoint source pollution from storm water runoff, erosion and sedimentation (roads, vineyards, timber harvest), channel modification, gravel mining and dairies, and MtBE and dioxin contamination. Ground water contamination from leaking underground tanks and health and safety issues from contaminated areas that are open to the public are also priority issues. High priority water quality problems due to point sources include chronic violations by POTWs and lack of permit compliance. Lack of funding for water quality monitoring and watershed assessment compounds the difficulty of addressing these issues. See Appendix D - *Nonpoint Source Tables*, Table 1 for Regional NPS problems by watershed.

The highest priority activities that have come from this process include:

- maintaining the core regulatory program for regulated dischargers
- increasing emphasis on stormwater runoff issues
- increasing monitoring and assessment activities
- increasing emphasis on nonpoint source issues (including forestry), especially as they affect salmonid resources
- developing and implementing Total Maximum Daily Load strategies (mostly sediment and temperature associated with salmonid resource declines)
- improving outreach and community involvement in decisions
- fostering watershed groups and volunteer monitoring

The highest priority issues that need more funding if they are to be properly addressed are monitoring and assessment, TMDL implementation, outreach and education, stormwater inspections, and waste discharger inspections in general.

In the Russian/Bodega WMA (see p.10 -37) the primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. Discharges of petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment are the primary pollutants of concern.

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. We have increased our emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement. The primary concerns include sedimentation, nutrients, and riparian destruction.

In the Klamath WMA (see p..38 -53) the following broad goals provide a focus for water quality control activities: 1) protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate), 2) protect and enhance warmwater and endangered aquatic species, 3) maintain the viability of agriculture and timber uses, 4) maintain recreational opportunities, and 5) protect groundwater uses.

In the North Coast River WMA (see p. 54 - 82) the overall emphasis is the inspection of timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our timber harvest program activities on private land in concert with California Department of Forestry and Fire Protection. The future development of TMDL waste reduction strategies for sediment will be another primary activity by Regional Board staff.

In the Humboldt Bay WMA (see p. 83 - 99) the following broad goals provide a perspective from which to view the specific goals and actions presented Section 2.4: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect surface and ground water uses for municipal supply, recreation, and industrial shellfish harvest, and 3) protect and enhance the anadromous salmonid resources.

In general, the primary issues associated with water quality in the Eel River WMA (see p. 100- 114) are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery. Since the watershed is located in steep forested terrain with highly erosive soils and high rainfall, erosion and sediment production and transport are high. For most of the watershed the issues of temperature and sedimentation and their impacts on the salmonid fishery are of high concern, involving the timber and rangeland industries. Other issues include ground water contamination, dairies in the delta area near the ocean, and localized contamination of surface and ground waters.

Existing Regional Board Programs

The major programs or work efforts that will be used to address problems and achieve goals in a specific management area are consolidated into eight groups. Each is briefly described below, and will be used in the *Implementation Strategy* sections of individual watershed plans.

Assessment: Assessing waterbody condition and specific relationships of land use or waterbody system dynamics is essential to identifying issues and assigning activities for correcting problems. Additional components of assessment include gathering public perspectives on water quality related issues and assessing the adequacy of existing institutional frameworks in correcting problems. (Note: the outcome is not intended to be additional framework, rather coordination and efficiency to improve upon the existing framework.) Focused water quality studies, TMDL approaches, ground water pollution identification, and nonpoint source assessments are included in this program category.

Monitoring: Waterbody trends and the effectiveness of control strategies and TMDLs will be monitored through water sampling programs, established photo points, aerial observation, and other observations relevant to the problems being addressed and the activities being used. Activities include ambient monitoring, special studies, and discharger compliance and self-monitoring under the Core Regulatory and ground water programs.

Core Regulatory: The Regional Water Board issues federal NPDES permits for discharges of waste to waterbodies in the region, and State Waste Discharge Requirements (WDRs) for wastes contained on site or discharged to land. Both prescribe the quantity, quality, and conditions under which waste can be discharged and require self-monitoring. Activities include issuance of new permits/WDRs, updating existing permits/WDRs, compliance inspections, review of self-monitoring reports, response to spills and complaints, storm water runoff, and associated enforcement.

Ground water: Activities to protect and clean up ground water are associated with Spills, Leaks, Investigations, and Cleanup (SLIC), wellhead protection, the above ground and underground tank programs (including local oversight programs), as well as site mitigation activities under the Department of Defense and Superfund programs.

Water Quality Certification: Activities associated with Section 401 certification are primarily Clean Water Act Section 404 permits for wetlands activities.

Nonpoint source: The long term goals are aimed at enhancing the overall recognition and understanding of nonpoint sources, especially sediment and nutrients, and elimination of the those sources as limiting factors in the maintenance and enhancement of salmonid populations. Our program follows the statewide Nonpoint Source Management Plan of 199988, using three tiers to accomplish the goals: Tier 1 - Self-determined “voluntary” compliance with water quality regulations, Tier 2 - regulatory encouragement, such as accepting practices in lieu of a waste discharge permit, and Tier 3 - regulation through permit. Activities associated with timber harvest on state, federal, and private lands and the development of TMDL waste reduction

strategies to meet a court-ordered consent decree are high priority throughout the Region. Localized agricultural problems are being addressed in the upper Klamath/Lost River area, Shasta and Scott river watershed, Eel River delta area, and the Russian River WMA. Outreach and specific nonpoint source activities are taking place in the WMAs

Timber Harvest: We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

Wetlands: The NCR has wetlands in lagoon areas along the coast, scattered throughout the region, and in the Santa Rosa Plain. Many of these areas are threatened by development activities such as new housing projects and vineyards. Long-term goals are directed toward wetlands protection and management. Most activities to protect wetlands take the form of CWA section 404 review and CWA 401 Water Quality Certification. At this time, other agencies are taking the lead on wetlands in the region such as the Army Corps of Engineers, the US Fish and Wildlife Service, the Department of Fish and Game, and the Division of Water Rights. We intend, in the near future, to develop a policy concerning wetland conservation in the region starting with an inventory and mapping of the resource, assessing the current conditions, and forming a strategy for conservation.

Local Contracts: The Clean Water Act 319(h), 205(j), and 104 grant programs result in contracts with local agencies or entities to plan, monitor, and improve water quality. This WMI chapter and the WMI outreach process serve as primary tools in promoting grant projects for water quality improvement in the region.

Water Quality Planning: Regional Water Board planning activities include the basin plan triennial review process, development of water quality objectives, development of action plans (including TMDLs), participation in watershed planning activities (including local watershed groups), basin plan amendments, and review of environmental documents. The most recent Triennial Review process was completed in 1998. Some planning tasks are watershed based, others are regional in nature. A reimbursable contract with the Sonoma County Water Agency for review and revision of water quality standards to comply with a “no take” provision of salmonids listed in the Russian/Bodega WMA under the federal Endangered Species Act was signed in April of 1998 and will produce proposed modifications to the Basin Plan objectives.

Non-Watershed Based Activities

As previously discussed, activities not prioritized or targeted on a watershed basis are addressed differently. For those activities occurring in a targeted WMA, we have attempted to describe the activities within the WMA section. Examples of these are: underground tank program, Department of Defense cleanup sites, and core regulatory activities like permit adoption and inspections.

For activities of a regional nature, such as Triennial Review of the Water Quality Control Plan for the North Coast Region and the Water Quality Assessment (305(b) report), we have provided descriptions in Section 3, Non-Watershed Based Activities, as well as descriptions within the individual watershed sections appropriate to those activities that are specific to a particular WMA.

To the extent possible we have incorporated all activities within a targeted WMA irrespective of whether the activities are targeted or prioritized on a watershed basis. For those WMAs that are not yet targeted we will phase descriptions of all activities that are not regional in nature into individual WMA sections as we progress through the rotating process.

SECTION 2

Watershed Activities

The following watershed plans draw upon knowledge and information obtained through public input, agency contacts, and the personal experience of Regional Water Board staff up to the time of this writing. Significant strategy development and implementation may be occurring in a WMA at the present time. However, we recognize that the problem identification, watershed assessment, and strategy development are not complete, and that further public and agency involvement will improve the effort. What is presented in this document is a preliminary summary of existing and planned actions based on current knowledge of the Regional Water Board staff.

Each WMA Plan is presented in the general format explained in the previous section, budget considerations for the Region as a whole summarized in Section 4.

Thirteen WMA Plans are presented in this section:

- 2.1 Russian/Bodega Watershed Management Area
- 2.2 Klamath Watershed Management Area
- 2.3 North Coast Rivers Watershed Management Area
 - Section 2.3.3 Mattole River
 - Section 2.3.5 Noyo River
 - Section 2.3.6 Big River
 - Section 2.3.8 Navarro River
 - Section 2.3.9 Greenwood Creek
 - Section 2.3.11 Garcia River
 - Section 2.3.12 Gualala River
- 2.4 Humboldt Bay Watershed Management Area
- 2.5 Eel River Watershed Management Area
- 2.6 Trinity River Watershed Management Area

Since this is a dynamic process, the document presents each WMA plan as of the time of this printing. As the process is in different phases depending on the WMA, some sections are more complete than others.

In addition, Section 2.7, *Clean Water Action Section 303(d) (TMDLs)*, presents a prioritized list of waterbodies not meeting water quality standards, as well as some additional background and implementation information. We will integrate that additional information into the individual WMA plans as the process continues.

Appendix D – *Nonpoint Source Tables* contains Table 4A Targeted Projects for Potential Funding from NPS Implementation and Table 4AA Targeted Projects for Potential Funding from NPS Planning. These two tables are a summary of grant priorities distilled from the individual WMA sections.

Non-Watershed Based Activities

To the extent possible we have incorporated all activities within a targeted WMA irrespective of whether the activities are targeted or prioritized on a watershed basis. For those WMAs that are not yet targeted (Eel River WMA, Trinity River WMA, and some North Coast Streams) we will phase descriptions into individual WMA sections as we progress through the rotating process.

Regional activities, such as the Basin Plan Triennial Review and the Water Quality Assessment (305(b) report), are described in Section 3, *Regional Activities*

SECTION 2.1

RUSSIAN/BODEGA WATERSHED MANAGEMENT AREA

The following draws upon knowledge obtained through public involvement, agency contacts, and the personal experience of Regional Water Board staff. Significant strategy development and implementation are occurring in the management area at the present time. We recognize that the problem identification and watershed assessment and the strategy development are not complete, and that further involvement will improve the effort. This document contains a summary of existing and planned actions based on current knowledge of the Regional Water Board staff.

MANAGEMENT AREA DESCRIPTION

This management area includes the Russian River and Bodega hydrologic units numbers 114.00 and 115.00, respectively. Within those units are the entire Russian River watershed (114.00), and Salmon Creek, Bodega Bay (including Bodega Harbor), Americano Creek, and Stemple Creek watersheds (115.00) (Figure 2.1-1).

Russian River Hydrologic Unit

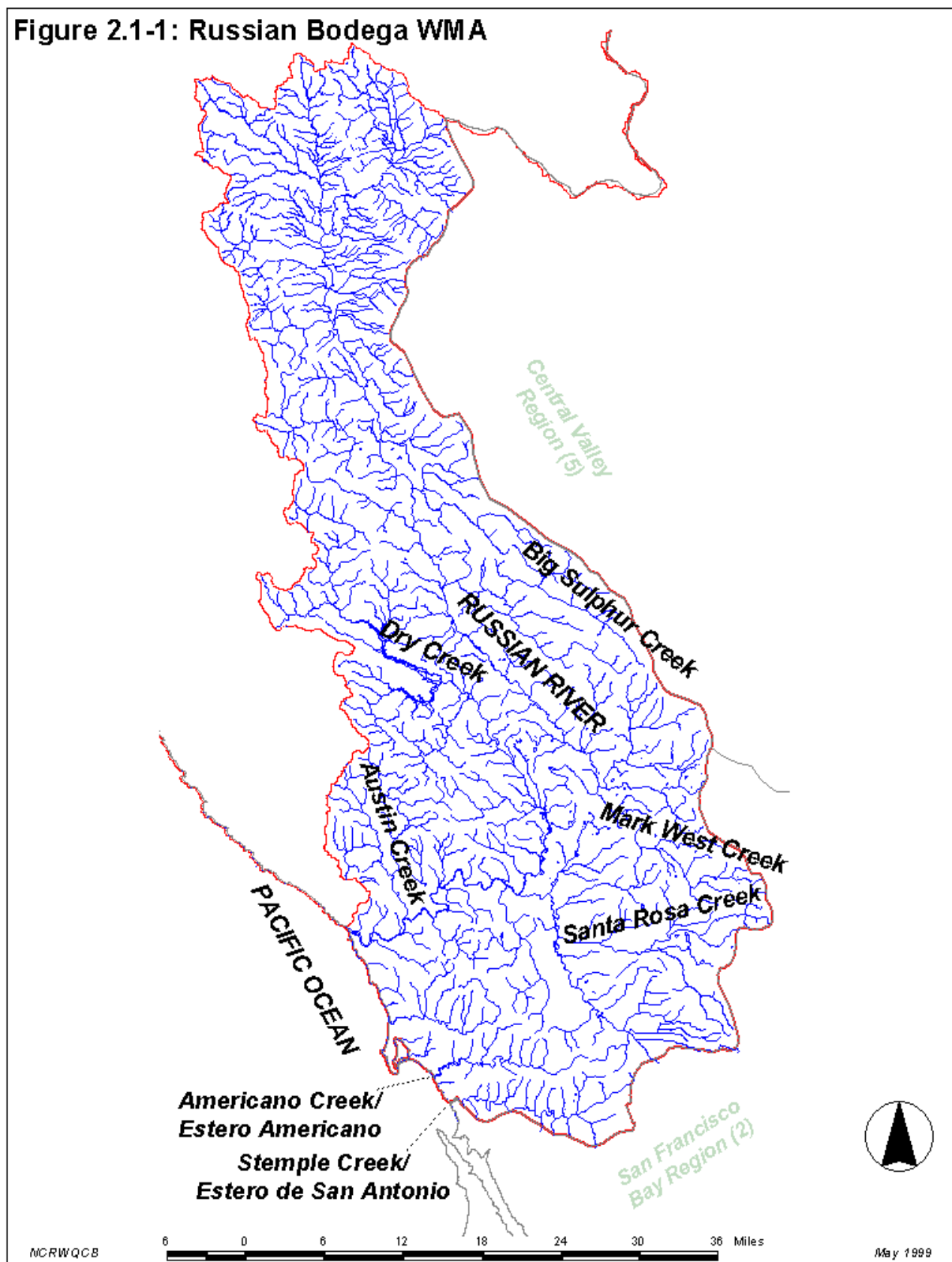
The Russian River hydrologic unit encompasses 1485 square miles in Mendocino and Sonoma counties, bounded by the Coast Ranges on both the east and west. The mainstem is about 110 miles long, flowing southward from Redwood and Potter valleys (north of Ukiah) to its confluence with Mark West Creek, where it turns west to cut through the coast range and empties into the Pacific Ocean at Jenner (Figure 2.1-1.) The principal tributaries from the headwaters down are the East Fork Russian River, Feliz, Pieta, Big Sulfur Creek, Dry Creek, Mark West Creek (including the Laguna de Santa Rosa), Green Valley Creek, and Austin Creek. Elevations range from sea level at the estuary near Jenner to 4,343 feet at the summit of Mt. St. Helena in the Mayacamas Mountains.

Two reservoirs provide flood protection and water supply storage: 1) Coyote Dam and Lake Mendocino on the East Fork Russian River near Ukiah, and 2) Warm Springs Dam and Lake Sonoma on Dry Creek west of Healdsburg. A diversion from the Eel River through the Potter Valley powerhouse flows into the East Fork and Lake Mendocino. The Russian River hydrologic unit supplies drinking water, including ground water supply to over 500,000 people and an unknown amount of water for agricultural purposes. The State Division of Water Rights has declared the Russian River tributaries fully appropriated from April 1 through December 14. The Water Rights Division is in the process of developing a strategy to deal with additional diversions in the mainstem and tributaries outside of the fully appropriated period. The majority of flow in the Russian River is during the winter season, when rainfall ranges from 30-80 inches, depending on locale. The summer climate is moist and cool near the coast with temperatures increasing in the upper valley areas that are more isolated from the coastal influence.

Bodega Hydrologic Unit

The Bodega unit is ____ square miles and is typified by cooler temperatures and relatively high rainfall due to coastal influences. The terrain in this unit is relatively steep, with the streams carving through the Coast Range and entering the Pacific Ocean south of the Russian River. Salmon Creek, Americano Creek, and Stemple Creek and their associated estuaries are the main waterbodies. These streams are located in erosive topography and are sensitive to land disturbance. Summertime flows are often non-existent in Americano Creek and Stemple Creek, while Salmon Creek flow is low but sustained.

The three major watersheds in the Bodega unit each have estuary areas. However, the most notable are the Estero Americano (Americano Creek) and the Estero de San Antonio (Stemple Creek). Those two estuaries are prized for their resemblance to fjords and the resource values associated with isolated estuarine areas.

Figure 2.1-1: Russian Bodega WMA

IMPLEMENTATION STRATEGY

Significant strategy development and activities for water quality protection and improvement are occurring in the WMA at this time. A California Resources Agency effort, coupled with a US Army Corps restoration effort, brought together a large group of stakeholders in the watershed. The Russian River Watershed Council (RRWC) is forming up to address watershed management issues. The vision is to make decisions on land use and water management by recognizing the effects of such decisions on all facets of the watershed. Additionally, the Sonoma County Water Agency contracted with the Regional Water Board for a three-year project to review water quality standards and regulatory mechanisms for compliance with a “no take” provision for salmonids under the federal Endangered Species Act (FESA). That project involves public workshops, meetings, and hearings.

A Regional Water Board staff watershed team is coordinating activities in the WMA to better address issues and problems, taking into account the level and timing of other agency’s watershed activities. The Regional Water Board watershed team also helped develop the watershed assessment and problem identification section presented later in this document. This effort included both the public and special interest groups. Continued coordination and assessment will fine-tune the planning and management activities in the future. The Regional Water Board team will develop focus groups, such as the Russian River Water Quality Monitoring Committee (explained below), to address specific issues and problems as they arise.

Public participation provides the added perspective of the resource users, helps identify any other issues not currently apparent, and thus refines the prioritization process. Public participation also serves as a forum to disseminate information obtained during the assessment and implementation process.

Institutional Framework

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined through the public participation process. The Sotoyome Resource Conservation District prepared a matrix of agency’s abilities and jurisdictions in December, 1996. That matrix needs to be updated, however a partial list of agencies and groups is provided in Appendix 2.1-A.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions are contained in the discharge prohibitions section of the Basin Plan. Point source waste discharges to all freshwater surface waters in this management area are prohibited by the Basin Plan with the exception of the Russian River and its tributaries. The Russian River watershed is a large portion of the Russian/Bodega WMA.

For the Russian River and its tributaries point source, direct discharges of treated municipal wastewater are allowed (by NPDES permits) during the period of October 1 through May 14 and at 1% of the flow of the receiving water. In addition, these municipal dischargers must meet, or be on a time schedule to meet, advanced waste treatment levels (essentially tertiary treatment without full nutrient removal). The Basin Plan allows exceptions to that provision as specified in individual action plans in the Basin Plan. The City of Santa Rosa has an exception, specified in Resolution No. 89-111 that allows discharge rates as high as 5% of the flow rate of the Russian River when approved by the Regional Board's Executive Officer. Several industrial wastewater discharges are allowed under provisions of NPDES permits which require compliance with applicable water quality standards. Likewise, , discharges from the cleanup of contaminated ground water , discharges from the (such as leaky underground petroleum storage tanks sites are permitted in low volumes and at nondetectable contaminant levels.

The Regional Water Board has entered into a contract agreement with the Sonoma County Water Agency (SCWA) to review water quality standards and regulations of the SCWA in the Russian/Bodega WMA for compliance with a “no take” provision for salmonids under the federal Endangered Species Act (FESA). Waterbodies in the WMA will be assessed against existing and proposed new standards and permits under

the contract, and opportunities to improve water quality and salmonid resources will be identified. Subsequent modification of the Basin Plan standards and SCWA permits may be necessary.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. In addition, staff formed a Russian River Water Quality Monitoring Committee in May of 1994 to enhance communication, identify and prioritize water quality issues, identify water quality monitoring needs, and improve coordination among agencies and public interest groups. The Committee was composed of agencies and public as listed in Appendix 2.1-A, and met about every month until late 1995. They prioritized a list of issues and provided direction on monitoring and assessment activities by the Regional Board staff, as well as assisting in some of those activities through a volunteer program.

Summary of Regional Water Board Activities

The general emphasis in the watershed is to enhance interagency and public coordination, protect existing uses, continue to implement and improve existing permitting programs, clean up contaminated ground water, implement preventative point and nonpoint source programs to protect surface and ground water, assess, monitor, and improve the biotic health of the system, reduce nutrient and sediment loading in selected sub-watersheds, and support efforts to improve the channel and riparian areas. We plan to accomplish these goals through increased efforts at assessing and evaluating compliance with water quality objectives through reviewing self monitoring reports, conducting compliance inspections and updating permits on a regular cycle. Staff will continue to respond to complaints regarding unpermitted discharges and violations of permit conditions. We have established Regional Water Board programs that address traditional point source pollution sources that primarily consist of municipal and industrial wastewater treatment and disposal.

We are implementing newer federal stormwater permitting programs that address the control of pollutants contained in storm water runoff from industrial, municipal and construction sites. Industrial facilities are required to design and implement appropriate “best management practices” (BMPs) to limit pollutants in storm water runoff. Construction projects involving total ground disturbance of five acres or more (reduced to one acre or more in the future pursuant to recent amendments to the Clean Water Act) are required to implement appropriate BMPs to control pollutant discharges during construction. In addition, provisions of this construction permit require implementation of controls to reduce post development impacts from potential increases in pollutant and runoff loads. A municipal NPDES storm water permit has been issued to the City of Santa Rosa requiring them to conduct activities aimed at reducing pollution due to the City’s storm water discharges. In addition, the State Water Resources Control Board has issued a statewide municipal NPDES storm water permit to the California Department of Transportation (CalTrans) requiring the agency to control storm water runoff from their transportation system. Regional Board staff will be responsible for implementing this permit for CalTrans discharges within this Region.

Non-point source waste discharges from the dairy industry and other agricultural operations are being addressed by education and outreach efforts for the agricultural community. The significant contribution of sediment from the increasing installation of vineyards on hillsides and other areas is not well controlled. Regional Water Board involvement has increased with recent funding to develop a comprehensive outreach program. Enforcement capabilities are retained for specific cases. Sonoma County requires a grading permit for some vineyard development and has passed a local vineyard ordinance which places certain restrictions on new vineyard development.

Regional Board staff continue to regulate activities involving “dredge and fill” within surface waters, including wetlands. Staff is responsible for ensuring that these projects comply with all applicable state standards, including the State’s “no net loss” policy for wetland impacts. State certification (401 Certification) is required by provisions of the Clean Water Act (CWA) in order for federal CWA 404 permits to be issued.

Assessment:

Though limited by funding, we intend to focus assessment efforts on identified concerns regarding objectives attainment (e.g., dissolved oxygen, bacterial quality, sedimentation), biological health (e.g., presence of xenobiotic estrogen responses in fish, benthic macroinvertebrate populations), evaluation of Basin Plan water quality objectives regarding federal Endangered Species Act (FESA) compliance (e.g., dissolved oxygen, temperature), ground water quality, and water quality and watershed modeling to assess the relative importance of various factors to changes in water quality. While some of the assessment efforts will be finished in the first three years of the five-year cycle, the FESA evaluations and water quality monitoring activities will continue into the next cycle. The biennial Water Quality Assessment under Clean Water Act Section 305(b) will be supported by the assessment and monitoring activities, including listings for Section 303(d).

Monitoring:

Water quality monitoring efforts will be focused on maintaining four long-term monitoring stations in the Russian River watershed and developing a monitoring consortium for the watershed, coordinating monitoring activities of all agencies, dischargers, and groups. Efforts will also include ground water quality assessment, and public participation. Additional needs in the smaller watersheds in the Bodega Unit include continued monitoring in the Stemple Creek watershed, and seeking funding for monitoring and assessment in the Americano Creek, Cheney Gulch, and Salmon creeks watersheds. These activities will continue beyond the first cycle. Options we will consider for improved and enhanced monitoring include the establishment of long-term photo records, fostering voluntary monitoring by individuals and watershed groups; reviewing the, US EPA Rapid Bioassessment Protocol, providing spatial analysis of surface and ground water data, and increased coordination with local universities and the UC Extension Service for education and outreach. Additional monitoring and assessment needs are provided in Appendix 2.1-B.

Core Regulatory:

We will continue (through and beyond this first cycle) to support the core regulatory program to the extent feasible based on available resources, and program and water quality priorities. Priorities and expected workloads are contained in annual program workplans developed each year by State and regional Board staffs.

Ground water:

Cleanups related to the leaky petroleum underground storage tank program, Superfund program, and other ground water remediation programs will continue for any new and all existing ground water contamination sites. Continued public outreach and education regarding hazardous waste handling and the potential for ground water contamination is a priority in preventing future problems. The Source Water Assessment Program administered by the California Department of Health Services may provide additional water quality protections for both ground water and surface water supplies.

Water Quality Certification:

The Clean Water Act Section 404 permitting (and associated Section 401 Water Quality Certification required of the Regional Water Board) have been streamlined significantly for salmonid stream habitat restoration activities that follow the California Department of Fish and Game *California Salmonid Stream Habitat Restoration Manual*. Adequate staff funding is needed to completely implement the 404/401 program. Staff continues to pursue innovative approaches to assure appropriate review and certification of all projects. High priority projects (those with a potential for adverse impacts) will continue to receive a complete review.

Nonpoint Source Program:

The long-term goals of this program are described in the Introduction section of this document. However, specifics regarding this WMA include:

- continue promoting self-determined “voluntary” implementation of best management practices in the dairy industry and other agricultural operations thorough coordinated outreach and education

with local agencies and watershed groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution

- assisting the local RCDs and other agencies with Section 205(j) and 319(h) projects to address riparian issues, sedimentation, and nutrient discharges
- addressing forestry issues under the Management Agency Agreement with the California Department of Forestry
- assisting in the continuing implementation of the *Total Maximum Daily Load and Attainment Strategy for the Stemple Creek Watershed*.
- Expanding the outreach program to educate hillside vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water, and conducting enforcement activities as needed to address erosion from hillside vineyards. Continuing outreach activities intended to assist in project development, water quality improvement and continued monitoring and assessment.
- assisting in the continuing implementation of the *Total Maximum Daily Load and Attainment Strategy for the Laguna de Santa Rosa Watershed*.
- Fostering the development and implementation of a *Total Maximum Daily Load and Attainment Strategy for the Americano Creek Watershed*

Additional nonpoint source program detail is provided in Appendix D.

Local Contracts:

Our active outreach program will continue, as well as the CWA Section 319(h) and 205(j) grant programs.

Water Quality Planning:

The Basin Plan review process assists in identifying issues that may affect the Russian/Bodega WMA, including the following:

- evaluate numeric and narrative dissolved oxygen and temperature objectives,
- consider numeric and narrative objectives for nutrients,
- review Nonpoint Source Control Measures,
- develop a comprehensive action plan for the Russian River,
- review water quality impacts from gravel mining, and
- evaluate cumulative impacts
- evaluate wetland and stream system protection measures

Evaluation and Feedback

Implementation progress will be reviewed annually, and adjustments made to the next year's work based on that review. Additionally, an evaluation of the progress and process will occur at the end of the five-year cycle. The evaluation may result in changes to the overall program, and the Regional Water Board may be able to apply discretionary funding to priority work efforts on a by-watershed basis. A summary of activities identified and completed by this process will be included in an appendix at a later date.

ASSESSMENT AND PROBLEM IDENTIFICATION

The following analysis is based on existing knowledge of issues and problems in the Russian River basin from long-term water quality monitoring, discharger regulation, water quality planning, nonpoint source program efforts, and public involvement. However, the following analysis may not constitute a full assessment, and will be updated annually.

The watershed planning process in the North Coast Region is intended to provide an administrative tool to facilitate budgeting decisions on the basis of issues, concerns, and problems and completed watershed. As such, numerous new activities were identified and prioritized by the Russian/Bodega Watershed Team. However, inadequate funding for existing programs makes it difficult to address new issues. The realities of

this are presented in the budget section. If additional funding becomes available, we will strive to address those issues in a priority order. To the extent Regional Water Board staff can, they will be sensitive to and address the additional actions identified within the goals and priorities.

Russian River Hydrologic Unit

The watershed is agriculturally based, with urban and industrial uses concentrated around the incorporated municipalities. The most notable are Ukiah, Cloverdale, Healdsburg, Windsor, Rohnert Park, Cotati, Sebastopol, and Santa Rosa. The largest concentration of urban and industrial use is in the Santa Rosa Plain, with Ukiah and Windsor second and third. Industrial uses include electronics manufacturing industries, petroleum distribution plants, light manufacturing, wrecking and salvage yards, wineries, wood products, and industries related to the construction industry, with Santa Rosa as the commercial distribution center for the North Coast.

In the Potter Valley area north of Ukiah, irrigated agriculture and pasturing are common. Rangeland and mixed coniferous forests (with minimal timber harvesting) are prevalent in the hills away from the farmed alluvial plains. Around Ukiah, irrigated orchard and vineyard are common land uses with light industry, several large wood products facilities associated with the timber industry, and gravel mining. Water quality issues in this part of the watershed are primarily associated with industrial areas, wastewater treatment plants, water use, erosion and sedimentation in the tributaries, destruction of riparian areas, and agricultural chemical uses in the alluvial areas.

Moving down the watershed, the Hopland area is predominantly vineyard with rangeland grazing in the areas away from the mainstem. The river then cuts through a small canyon with rangeland grazing as the primary land use before reaching Cloverdale and more vineyards. Vineyards predominate the valley areas down to the Santa Rosa Plains. Vineyard development in the hillside areas adjacent to the alluvial terrace is an increasing concern from the standpoint of erosion and sedimentation. Gravel terrace pits are another feature interspersed in the alluvial plain. In addition to the water quality issues upstream, bank erosion, health of riparian areas, construction activities, and more industrial, commercial, household, and agricultural chemical uses rank high as concerns for this area.

The Santa Rosa Plain and Healdsburg hydrogeologic areas contain large ground water basins, supplying water for municipal, domestic, industrial and agricultural uses. The Santa Rosa Plain and tributary uplands include a number of animal facility operations,. There are currently 24 active dairies in the Mark West Creek (Laguna de Santa Rosa) watershed. Conversion of rangeland, pasture, and orchards to vineyard has increased in the last decade. The availability of reclaimed wastewater produced by the City of Santa Rosa operated sub-regional municipal wastewater treatment facility has resulted in conversion of about 6,500 acres of rangeland to irrigated pasture, cultivated fodder crops, and other uses. The Santa Rosa Plain is the most populated area in the North Coast Region with six incorporated communities and over 200,000 residents (1990 US Census). area in the North Coast Region. A number (four six ?) of large river terrace pit-type gravel mines are located downstream of Healdsburg.

The trend appears to be towards continued conversion of range, pasture and forest lands to vineyards, and continued growth of the urban areas of Ukiah, Cloverdale, Healdsburg, Windsor, Santa Rosa, and Rohnert Park. Associated with that growth are active construction sites and an increase in light industrial operations. A concerted effort is being made in the Santa Rosa Plains to retain the (reclaimed wastewater irrigated crop) and pastureland type of agriculture and maintain the viability of the dairy industry. however, significant conversion of rangeland and pasture to vineyards continues to occur . The market for premium North Coast wine grapes far outstrips supply. Therefore, the pressure for land conversion to vineyards probably will not diminish.

The Laguna de Santa Rosa watershed drains the southern two-thirds of the Santa Rosa Plains. The Laguna de Santa Rosa, which is a major tributary of Mark West Creek, is listed for nutrient and dissolved oxygen impairment on the Clean Water Act Section 303(d) list. Nutrient and dissolved oxygen impairments results

from both point and nonpoint source discharges and the hydrology of the watershed. An active waste reduction strategy is underway per Section 303(d) requirements, including the development of waste loading limitations.

The Russian River, turns to the west and cuts through the Coastal Range downstream from the confluence of the Laguna de Santa Rosa and Mark West Creek tributary area. This downstream physical structure of the river has a lower gradient and the summer base flow occupies most of the low flow channel. . The lower Russian River hillsides are steep and forested with mixed conifers, redwoods being the major component. Residential areas are periodically along the river with a number of them located on the narrow flood plain. Land uses are consistent with the semi-rural setting with vineyards and pastures located on the flood plain benches. Industrial activity is associated primarily with timber (harvesting and lumber) and the construction trade. Tourism associated with summer recreational use of the river is a major economic base. Growth has been sporadic. The 1990 census lists five unincorporated communities with less than 10,000 residents total. Water quality concerns include effects from upstream land use activities in both urban and rural areas and include individual on-site septic system problems and erosion and sedimentation problems from tributary streams.

As the river flood plain flattens to meet the ocean the river widens into a relatively narrow estuary in the Jenner area. Land use is predominantly rangeland grazing and timber production.

Current Water Quality Conditions

Russian River sampling programs conducted over the last 20 years indicate substantial improvements in water quality. Pollution control efforts with respect to point sources(municipal and industrial waste treatment and discharge) and non-point sources (agricultural runoff, urban and industrial runoff, and septic tank practices) are largely responsible for improvements in water quality (*Interim Staff Report Regarding Russian River Water Quality Monitoring*, January 27, 1993, currently being revised).

Toxic substances have rarely been detected in the water column. Sediment sampling in 1985-86 and again in 1995 detected no pesticides in sediments. Monitoring of heavy metals exhibited no trends, with the exception of higher zinc in concentrations downstream from the more urbanized areas.

Toxic substance sampling in resident fishes and in transplanted freshwater clams does occasionally detect pesticides and/or heavy metals. However, the only significant trend is the presence of mercury in fish flesh from lakes (Pillsbury, Mendocino, and Sonoma) (Toxic Substance Monitoring Program data reports, 1976-1995; *Sediment Sample Results for Organic Chemicals, Metals, and Nutrients in the Laguna de Santa Rosa/Mark West Creek System and the Russian River*, 1985-86 and 1995., in draft form). The issue of mercury in fish flesh was referred to the California Office of Health and Hazard Assessment for their analysis and action and a health advisory issued for Lake Pillsbury.

The major water quality issues associated with the Healdsburg and Santa Rosa Plain areas are concentrated downstream from the urbanized areas (stormwater runoff, chemical usage, wastewater), and where animal facility operations (primarily dairies), cultivated agriculture, and industrial sites are located. Ground water resources have been affected by toxic discharges, (primarily petroleum products and solvents from leaky underground storage tanks and other industrial sites), with municipal supply wells for the City of Sebastopol and City of Santa Rosa being shut down due to toxic chemical contamination. Many individual wells in the area are also contaminated by toxic chemicals.

Sedimentation, riparian area destruction, low stream flows, stream modification practices and high water temperatures have been identified as concerns in the tributaries. The Russian River watershed was added to the Section 303(d) list for sedimentation issues in December of 1997. Further assessment of conditions and actions to reduce impacts to the anadromous fishery from excessive erosion and sedimentation will be a priority for the future. The streambed of the mainstem of the Russian River through this area has downcut considerably due to a variety of factors. Obvious problems associated with that downcutting include bank

erosion, downcutting of tributaries and the threat of barriers to fish migration due to excessive elevation changes between the tributaries and the mainstem, and lowering ground water elevations in the alluvial terraces. Exacerbating these problems is the large-scale invasion of exotic bamboo, *Arundo donax*, along the riparian areas of streams in the Russian River watershed. Concern is high and actions to address this problem are being discussed, including eradication by a variety of methods.

The Laguna de Santa Rosa is seasonally eutrophic. A TMDL has been developed and implementation is underway to reduce and/or eliminate nutrient sources necessary to improve water quality. Clean Water Act grant funding has been utilized for upgraded publicly owned treatment facilities in the watershed since 1972. A watershed task force developed recommendations for managing resources in the watershed, and the Laguna Foundation promotes restoration of wetland and other wildlife and water quality resources in the watershed. A Waste Reduction Strategy (TMDL) is being implemented and tracked with attainment of dissolved oxygen objectives and the USEPA ammonia criterion as the goal (*Waste Reduction Strategy for the Laguna de Santa Rosa*, North Coast Water Quality Control Board, March 1, 1995; *Laguna de Santa Rosa Water Quality Objective Attainment Plan*, CH2M Hill Consulting, June 1994; *Investigation for Nonpoint Source Pollutants in the Laguna de Santa Rosa, Sonoma County*, North Coast Water Quality Control Board, September 24, 1992). Ammonia goals were met ahead of schedule, but dissolved oxygen continues to be a problem due to enriched bottom deposits in the Laguna.

Bodega Hydrologic Unit

This Bodega Hydrologic management unit is typified by rangeland grazing and animal facility operations, including dairies and some timber production in the Salmon Creek watershed. Although the community of Bodega Bay (in the Bodega Harbor watershed) has experienced some development in the last decade, the growth has been minimal in comparison to the growth that has occurred in the Santa Rosa Plain. The population of the Bodega Bay area was 1127 residents according to the 1990 census.

Americano Creek and Stemple Creek are Clean Water Act Section 303(d) listed for water quality impairment associated with high ammonia and low dissolved oxygen (*Stemple Creek Water Quality Characteristics and a Maximum Daily Load Process*, Marin and Sonoma Counties, North Coast Water Quality Control Board, August 15, 1995). A watershed group was formed in the Stemple Creek watershed to address erosion and animal facility operation waste issues. A Section 303(d) *Total Maximum Daily Load and Attainment Strategy for the Stemple Creek Watershed* was developed and adopted by the Regional Water Board in 1997 to address sediment and nutrient issues. Water quality improvements have been documented in the last two years as a result of activities in the watershed.

The coastal watersheds (Stemple Creek, Americano Creek, Salmon Creek, and other smaller tributaries to Bodega Bay) located south of the Russian River have historically received little attention from a water quality sampling perspective. However Americano Creek will be targeted for a waste reduction strategy similar to Stemple Creek in the next few years. The California Department of Fish and Game is presently conducting water quality monitoring in Stemple Creek and Americano Creek, however we are unsure of the future of that monitoring. The Marin/Sonoma Farm Bureau's Animal Resource Management Committee is implementing a citizen voluntary monitoring program for the Stemple and Americano Creek watersheds.

WATER QUALITY GOALS AND ACTIONS

The following discussion of issues and problems for the Russian/Bodega WMA is not in order of priority, and was compiled from the combined knowledge of Regional Water Board staff, from agency and public involvement at Regional Water Board and other meetings, and meetings of the Russian River Water Quality Monitoring Committee. As discussed in the Implementation strategy, funding constraints limit our ability to do some mandated tasks primarily associated with core regulatory activities. The prioritization of the goals and actions in the Budget section may allow us to focus new funding on the highest priority items as that funding becomes available, depending on the tasks that the new funding is intended to address. Additionally, that priority listing provides a picture of issues not addressed as funding is reduced.

The primary water quality goals focus on protecting beneficial uses of surface and ground water such as salmonid fishery values, recreation, and domestic, municipal and agricultural water supply. Maintaining the core regulatory activities associated with point source waste discharges to surface and ground water from municipal and industrial sites is a high priority. Permitting, compliance inspections, enforcement and cleanup activities are performed on those facilities with the highest threat and/or actual impact on water quality. We will continue our program of investigation and follow-up of spills and complaints regarding water quality problems. Discharges of petroleum hydrocarbons, pesticides, nutrients, bacteria and sediment will be the primary pollutants of concern. .

Nonpoint source discharges are addressed by the core regulatory program storm water permits and inspections, and by the nonpoint source program through timber harvest inspections, outreach, grants, and promoting land management measures that are protective of beneficial uses. The nonpoint source issues are more difficult to address due to their diffuse nature. We have increased our emphasis on animal facility waste control, erosion control, riparian improvements, and fishery habitat enhancement. The primary concerns include sedimentation, nutrients, and riparian destruction.

The nine Goals for the Russian/Bodega WMA are related through the beneficial uses they address:

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2**
- **GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses**
- **GOAL 3: Protect/enhance coldwater fisheries**
- **GOAL 4: Protect/enhance warmwater fisheries**
- **GOAL 5: Protect aquatic life and public health in Bodega Harbor**
- **GOAL 6: Objectives attainment in the Laguna de Santa Rosa**
- **GOAL 7: Stemple Creek and Americano Creek Waste Reduction Strategies**
- **GOAL 8: Water Rights Coordination**
- **GOAL 9: Assessment of Salmon Creek and other tributaries**

Protection of surface water (Goal 1) for the primary beneficial uses MUN, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected, agricultural and industrial supplies are also protected which relates Goal 1 to Goal 2 (ground water protection).

The protection of cold and warm water fisheries (Goals 3 and 4) requires the protection of surface and ground waters (Goals 1 and 2) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. When these additional concerns are met, Goals 6, 7, and 9 (Laguna de Santa Rosa, Stemple Creek and Americano Creek, and Salmon Creek and the remaining coastal tributaries) will also be addressed.

Goal 5, the protection of Bodega Harbor, involves REC-1, REC-2 and COLD beneficial uses among others and is related to Goals 1 and 3. Goal 8, coordination of water rights, is related to Goals 1, 2, 3, and 4 by affecting surface and ground water quality and supply. Therefore, by protecting the beneficial uses that demand the highest quality waters, most components supporting the other beneficial uses also will be protected.

GOAL 1: Protect surface water uses MUN, REC-1, REC-2

High quality water is required to protect these primary beneficial uses. The Regional Water Board recognizes that protecting and enhancing water quality for the primary beneficial uses will generally maintain and protect all other uses.

The Russian River must be protected at a level to maintain the municipal and domestic supply systems for over half a million users. These water supply systems include Ukiah, Hopland, Cloverdale, Healdsburg, Windsor, Santa Rosa and southern Sonoma/northern Marin counties, Guerneville and numerous other communities.

The Basin Plan requires that municipal discharges to the Russian River and its tributaries be improved to tertiary levels that are pathogen free. The cities of Santa Rosa, Ukiah, and Windsor, and the Russian River County Sanitation District meet the terms of the Basin Plan provision for tertiary effluent. The City of Healdsburg, which is under a Cease and Desist order, discharges secondary effluent to a former gravel pit in the flood plain that was overtopped during the winters of 1994-95, and 1996-97. Healdsburg has produced an EIR for a project that will improve treatment to an advanced level with discharge of final effluent to a new percolation pond protected from inundation (flooding).

The City of Santa Rosa, which is under a Cease and Desist Order, has prepared an EIR and is exploring alternatives for their long-range plans for wastewater disposal. Russian River County Sanitation District, also under a Cease and Desist Order, meets advanced treatment requirements, however, bypasses of partially treated wastewater routinely occur with the frequent flooding conditions experienced in the lower Russian River.

The unincorporated communities of Forestville and Graton, which are under time schedules, and Occidental, which is under a Cease and Desist Order, discharge secondarily treated wastewater to tributaries of the Russian River. The time schedules for these communities require improvement of effluent quality to an advanced degree as soon as practicable. Each community is in the early planning stages of projects to meet the terms of their permits. Forestville and Graton are intertied with a pipeline. However, each community could pursue independent solutions. Alternatives include complete elimination of the discharge of treated effluent to surface waters by use of additional storage and reclamation; or, upgrade to tertiary level waste treatment. Occidental may build additional storage/irrigation facilities or abandon its facility and transport wastewater to another treatment and disposal facility or to a community leachfield.

The tertiary level waste treatment requirements in the Basin Plan do not apply to Occidental until the average dry weather flow to the treatment plant exceeds 20,000 gallons per day. It is unlikely that these small facilities will upgrade treatment to an advanced degree due to the cost of facility construction, operation and maintenance.

Western Sonoma County areas of Mirabel Heights, Monte Rio, and Camp Meeker have high septic system failure rates. The Health Department and County Board of Supervisors recognize these septic systems as health hazards. The extent to which these systems impact recreational uses in the Russian River is not known. However, the most serious failures probably occur during the winter when body contact recreation season is minimal. The County of Sonoma is aggressively pursuing funding to eliminate chronic septic tank failures. Planning is moving ahead with strong local support; however, funding is a realistic limiting factor in most of the communities. Projects have been included in the State's highly competitive Small Community Grants Program. Mirabel Heights is currently constructing a wastewater collection system which will enable the abandonment of existing septic systems.

General stormwater permits regulate industrial and construction stormwater discharges. This is a relatively new regulatory area within the last decade with limited funding resources for permit compliance and assessment. Regional Water Board staff is inspecting a limited number of permittees, and has taken enforcement actions against significant violators. Additional resources are anticipated that will allow more complete regulation of these dischargers.

Timber harvesting in the WMA accounts for less than 5% of the volume of timber harvested in the North Coast Region. Public concerns have been expressed for localized water quality impacts from timber harvesting in urban areas. Specific concerns are in the Willow Creek drainage and smaller tributaries to the lower Russian River area near Guerneville. Staff reviews timber harvest plans in coordination with the California Department of Forestry for potential water quality impacts.

Rural residential roads are a source of sediment in the WMA. Multiple owners, without a unified responsibility for maintenance and prevention of erosion, control these roads. Staff enforces Basin Plan Prohibitions for the discharge of sediment from the construction of individual roads.

Pesticide and fertilizer applications in the WMA are a public concern for domestic and aquatic uses, however water quality sampling has not found pesticides in the water or sediments. The sporadic detection of solvents, likely of industrial origin, in Santa Rosa Creek is a continuing Regional Water Board concern.

Regional Board staff, in response to the TMDL for Stemple Creek and preliminary findings of the Stormwater Permit, have required the County of Sonoma to investigate the impacts of the Sonoma County Landfill on Stemple Creek. In addition, a ground water investigation is ongoing to determine if contaminated ground water is leaving the landfill. The county also is proposing to expand the landfill. An EIR is currently under consideration and Regional Board staff is reviewing a Report of Waste Discharge (Joint Technical Document).. New waste discharge requirements should be considered for adoption in early 2000.

Some of the above point source discharge issues also pertain to nonpoint source discharges, for instance the concern about bacterial quality at popular swimming beaches. In addition, storm water runoff from agricultural, urban, industrial, and construction sites contributes episodic and unquantified loads of sediment, metals, organic chemicals, nutrients, and organic matter to waterbodies in the WMA. Erosion from grazing impacted lands may affect the Salmon Creek watershed. Areas of concern include the north side upstream of the Carmet Water District water supply, and the mid-section of the watershed upstream from the community of Bodega. Abandoned mercury mines may affect water quality in the Big Sulfur Creek and Fife Creek watersheds. The Bay Protection and Toxic Cleanup Program sampling results indicate complex organic chemical contamination in sediments at two locations in Bodega Harbor.

Point Source Issues

Current Activities

Current activities are funded with resources that grow increasingly limited. These continued regulatory activities are necessary core elements for maintaining sound water quality protection in the basin, and include:

- Continue to track compliance with time schedules in NPDES Permits and enforcement orders. Stormwater permittees are inspected in a limited program based on threat to water quality. Staff will continue to inspect regulated dischargers for the purpose of verifying compliance with permit conditions.
- Keep all Russian River municipal dischargers on schedule for advanced wastewater treatment. This activity has its own public participation process.

- Evaluate the most recent City of Santa Rosa EIR and long-range plan and prepare a revised NPDES permit and Basin Plan action plan as appropriate. This activity has its own public participation process.
- Maintain bacterial sampling at public water contact recreation areas (Johnson's Beach, Fiche Mountain, and other such locations) with a multi-agency approach to identify more clearly the bacterial quality in these areas.
- Maintain the sampling regimen at the four long-term historical water quality monitoring stations to provide long-term monitoring data for the Russian River mainstem. Evaluate monitoring sites in other streams in the unit.
- Review Basin Plan water quality objectives for adequacy in protecting FESA listed salmonid fishes and recommend changes to the objectives and NPDES permits.
- Provide assistance/coordination to Sonoma County Water Agency for the development of an early warning system for the mainstem Russian River.
- Evaluate the cumulative impacts of discharges using the Russian River water quality model and other methods available to staff.
- Continue to regulate industrial storm water dischargers in the Rosalind Creek watershed and other watersheds.

Additional Needs

There are additional core regulatory elements that are unfunded. Consequently, Regional Water Board staff is responding to complaints and spills on certain dischargers after a problem has been created, rather than prevention through regulatory oversight and inspections. The following details work that could be met with additional staffing in the WMA.

- Continue and also seek additional staffing to work with the City of Santa Rosa to fully implement their Municipal Storm Water Permit. The Regional Water Board is also implementing the State's general storm water permit program. That program is designed to bring all industrial operations and most construction sites (including CalTrans operations) into compliance with NPDES discharge standards. The result has been a reduction in the discharge of pollutants from permitted sites by the implementation of best management practices.
- Inspect all regulated facilities in accordance with the State Administrative Procedures manual (Additional resources must be developed to affect this increase.)
- Identify any point source discharges of hazardous or toxic substances to Santa Rosa Creek and mitigate.
- Target subwatersheds, commencing with eastern tributaries to the Laguna de Santa Rosa and progressing to western tributaries, to assess filing status and compliance with industrial and construction storm water permits. Prioritize remaining subwatersheds for similar activities.
- Pursue enforcement actions on non-filers for industrial and construction storm water permits, commencing with the eastern tributaries to the Laguna de Santa Rosa and progressing to western tributaries.
- Provide comment on environmental documents, modify permits, and generally promote concerns for maintaining stream channel form and function.
- Assess spill contingency planning and compliance on aboveground storage tanks, commencing with the eastern tributaries to the Laguna de Santa Rosa and progressing to western tributaries. Prioritize remaining watersheds for similar activities.
- Coordinate activities with local agencies and groups. Contact the Bodega Marine Laboratory, the City of Santa Rosa, the County of Sonoma, the UC Extension, UC Davis, Sonoma State University, and the Farallones Institute regarding past and present studies. Contact the US Natural Resources Conservation Service regarding watershed assessment projects. Contact the Adopt-a-Watershed program regarding biological monitoring in local streams.
- Pursue post construction storm water management to improve water quality and flood control including: 1) modify and/or improve the quality of storm water discharges from new development

and significant redevelopment, 2) modify operations or structures of existing and future flood control projects to reduce pollutant loadings, 3) develop institutional and structural controls which can be incorporated into permits for new developments, and 4) equilibrate pre-construction and post-construction runoff rate strategies for use in land use planning.

Nonpoint Source Issues

Current Activities

- Agriculture is exempt from the industrial storm water permit program. Therefore, the Regional Water Board must use other methods including education, outreach and enforcement of Basin Plan provisions to reduce or eliminate nonpoint source discharges from hillside vineyard development and other agricultural operations.
- Regional Board staff are expanding the outreach and enforcement activities on hillside vineyards with new funding.
- Continue to work with animal facility operations to develop and implement improved animal waste management practices, such as ranch plans that include comprehensive nutrient management plans. This also includes the implementation of the Stemple Creek Total Maximum Daily Load and Water Quality Attainment Strategy.
- . Maintain the effective individual on-site waste disposal system program described in the Basin Plan and promote reasonable resolution of localized problems (e.g., evaluation of innovative systems, assessing the impact of failing septic systems in lower Russian River, and consider additional prohibition areas)
- Support the Sonoma County's hillside vineyard which addresses the issue of erosion and sediment discharges from hillside vineyard development.
- Support the Marin County RCD and Southern Sonoma County RCD and Natural Resource Conservation Service efforts to address erosion and mass wasting (land slides) sediment issues in the Stemple Creek watershed with education, outreach and grant assistance. This also includes the implementation of the Stemple Creek Total Maximum Daily Load and Water Quality Attainment Strategy.
- Continue to review timber harvest operations in coordination with the California Department of Forestry for control of sediment discharges.
- Continue in the restoration of portions of Santa Rosa Creek. Waste discharge requirements for the Prince Trail project have been adopted.
- Monitor for MTBE in Lake Sonoma and Lake Mendocino.

Additional Needs

- Monitor for toxic chemicals in water, sediment, and tissue. Includes TSMP, SMW and xenobiotic estrogen investigations. Funding for assessment and monitoring is a continuing concern. Innovative approaches to funding and volunteer monitoring should be pursued.
- Additional outreach and enforcement where appropriate should be promoted to ensure agricultural operations are protective of beneficial uses.
- Promote additional outreach and enforcement where appropriate for improved road maintenance and sediment control on rural residential roads.
- Promote additional outreach and enforcement on implementation of best management practices and pollution prevention at commercial and industrial facilities.
- Seek funding for additional assessment of semi volatile, volatile, and metal pollutants in Laguna de Santa Rosa tributaries.
- Continue to expand effort to identify erosion and sediment sources and potential sources related to new development of hillside vineyards
- Expand outreach on best management practices for hillside vineyards, including further development of interagency coordination and cooperation on addressing erosion problems.

GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses.

The discharges to ground water from underground and above ground tanks, wrecking yards, maintenance yards, septic systems, landfills, herbicide and pesticides applications, dairies, illegal disposal sites, and other agricultural and industrial facilities have resulted in contamination and degradation of ground water. Included are the possible impacts of the Sonoma County Landfill on the ground water in the Stemple Creek watershed. Other priority locations include the McMinn Superfund area, Santa Rosa Avenue area, older residential developments in the North Dutton Avenue/Freeway well area, and areas near Sebastopol wells #4 and #5.

Sonoma County relies heavily on ground water as a domestic supply, including sole-source aquifer for the City of Sebastopol, and principal reliance on ground water for the City of Rohnert Park. Santa Rosa uses ground water as stand-by and to supplement diversion from the Russian River underflow, and is planning to augment year-round supplies by additional ground water usage.

The extent to which some ground water contamination areas affect surface waters is not well known, but several toxic sites are documented as affecting nearby streams with contaminated ground water (e.g., Roseland Creek in south Santa Rosa, Santa Rosa Creek in the downtown Santa Rosa area, Foss Creek in Healdsburg, and Porterville Creek in Cloverdale).

The City of Santa Rosa has prepared an EIR and is exploring alternatives for their long-range plans for wastewater disposal. That plan should be completed in 2001 requiring additional staff work to evaluate potential impacts to ground water.

The western Sonoma County areas of Mirabel Heights, Monte Rio, and Camp Meeker have high septic system failure rates. Discharges currently not under permit or other regulation should be eliminated, and nitrate and other pollutant discharges to ground water assessed.

Confined animal operations (dairies, feed lots, horse paddocks) and other animal agricultural operations (rangeland grazing) contribute nitrogen, phosphorus, organic matter, and sediment loads to some watersheds, most notably the Laguna de Santa Rosa, Stemple Creek, and Americano Creek.

Point Source Issues

Current Activities

- Enforcement actions at the Sonoma County Landfill have been taken and corrective measures are being implemented. There is also a proposed expansion of the landfill.
- Continue with pollution prevention activities to promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water pollution prevention controls, solid waste, dairy waste, municipal waste water, agricultural and industrial wastes.
- Continue to address the sites which have the highest ground water contamination, greatest risk to the beneficial ground water uses and greatest risk to drinking water sources first, followed by the lesser contaminated sites.
- Assist City of Sebastopol in a source water protection program and continue efforts at source control for the ground water contaminated with solvents and petroleum products.
- Coordinate with local agencies to protect ground water, assess effects of gravel mining and other land use activities on local water tables, and assess impacts of industrial and agricultural chemicals in the ground water. Devote staff time to participate in the California Department of Health Services' Source Water Assessment Program.

- Devote staff time to the City of Santa Rosa EIR to review the alternative(s) selected and identify needed actions.

Additional Needs

- Expand source water protection programs to areas beyond Sebastopol.
- Evaluate local program efforts for eliminating Class V injection wells and unpermitted discharges to the subsurface. Promote eliminating Class V wells and coordinate with US EPA on identifying locations of other Class V wells in the WMA. Class V wells include, but are not limited to, shallow injection wells, leachfield/infiltration systems, drywells, cesspools, or drainage wells receiving industrial wastes.
- Provide needed enforcement follow-up on unpermitted discharges.
- Expand cleanup efforts to address Priority II and III SLIC dischargers in a timely basis.
- Expand assessment program for determining sources of polluted well contamination.
- Funding for assessment and monitoring of ground water is lacking. Innovative approaches to funding and volunteer monitoring should be pursued.

Nonpoint Source Issues

Current Activities

- Maintain the Regional Water Board and County of Sonoma's individual waste disposal systems program and promote reasonable resolution of localized problems (e.g., evaluation of innovative systems and assess impact of failing septic systems in lower Russian River).

Additional Needs

- Promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water runoff, solid waste, dairy waste, municipal waste water, agricultural and industrial wastes.
- Coordinate with local agencies to protect ground water, assess effects of gravel mining and other land use activities on local water tables, and assess impacts of industrial and agricultural chemicals in the ground water.
- Coordinate with other agencies and groups regarding ground water issues and funding.
- Establish a monitoring network in high risk/high ground water use areas.
- Determine source of pollutant discharges from ground water-to-surface water pathway.
- Assess nonpoint source impacts of Sonoma County landfill on Stemple Creek.

GOAL 3: Protect/enhance coldwater fisheries

The historic anadromous fishery is in decline due to a combination of factors, including dams, siltation, loss of habitat, low tributary flows, high tributary temperatures, and other factors. The condition of water resources with respect to maintaining and enhancing those uses is being addressed by other agencies, however we share responsibility for determining the level of attainment.

The US Army Corps of Engineers in partnership with the State Department of Conservation has promoted a Russian River Watershed Council to improve coordination and formulate an approach to improving the fishery. The Council is in the early stages of formation and it is hoped, will be able to address many of these issues in a collaborative fashion.

Activities to improve conditions and the fishery must be promoted, and water quality must support that use. The following issues are in addition to or provide more detail than those identified for Goal 1, recognizing that actions to achieve Goal 1 will address the same issues for coldwater fish.

Coho salmon (*Oncorhynchus kisutch*), chinook salmon (*Oncorhynchus tshawytscha*), and steelhead trout (*Oncorhynchus mykiss*) are listed under the federal Endangered Species Act as threatened in the WMA. Both coho and steelhead are found in some tributaries of the Russian River and in some coastal streams in the Bodega Hydrologic Unit. Chinook are documented in the Russian River.

Hillslope erosion and subsequent sedimentation of coldwater spawning streams in the WMA has been documented for a number of tributaries in the Russian River watershed, as well as other coastal streams in the WMA. Erosion rates are high in the Bodega Hydrologic Unit. The Marin County and Southern Sonoma County RCDs are addressing issues associated with erosion and mass wasting (landslides) in Stemple Creek. Additional concerns have been voiced regarding grazing impacts in the Salmon Creek watershed on the north side upstream of the Carmet Water District water supply. County road failures, especially associated with stream and drainage crossings, can contribute to sedimentation of local streams.

Confined animal operations (dairies, feed lots, horse paddocks) and other animal agricultural operations (rangeland grazing) contribute nitrogen, phosphorus, organic matter, and sediment loads to some watersheds, most notably the Laguna de Santa Rosa, Stemple Creek, and Americano Creek. Funding for assessment and monitoring has diminished seriously over the last decade.

Xenobiotic estrogens (organic chemicals that mimic, suppress, or enhance estrogen activity in animals) may affect the reproductive health of the anadromous fishes in the Russian River watershed. The WMA contains populations of the federally endangered freshwater shrimp, *Syncaris pacifica*, and tidewater goby, *Eucyclogobius newberryi* is found in the esteros. The extensive wetlands areas once found in the WMA have diminished significantly and efforts are underway to restore some of the wetlands values in the area. There is a need for continued planning and coordination of stream restoration projects.

Conversion of mixed hardwood and forested slopes to hillside vineyards contributes sediment to the tributaries of the Russian River, where fish rearing and spawning occur. Riparian habitat is reduced to accommodate commercial vineyard production and can elevate stream temperatures and reduce sediment metering functions of the riparian zone. Resultant impacts include changes in stream channels as well as direct sedimentation of the streambed. Increased sedimentation in some tributaries is causing widening and shallowing of the stream channel, increasing bank erosion and exacerbating water temperature problems.

Timber harvesting in the WMA accounts for less than 5% of the volume of timber harvested in the North Coast Region. Public concerns have been expressed for localized water quality impacts from timber harvesting in urban areas. Specific concerns are in Willow Creek drainage and smaller tributaries to the lower Russian River area near Guerneville. Staff reviews timber harvest plans in coordination with the California Department of Forestry for potential water quality impacts.

Rural residential roads are a source of sediment in the WMA.. Multiple owners without a unified responsibility to maintain the roads from erosion of surface soils control these roads. Staff enforces Basin Plan Prohibitions for the discharge of sediment from construction of individual roads.

Maintenance of flows through the Potter Valley powerhouse and diversion, an interbasin transfer of water from the Eel River watershed into the Russian River watershed, is threatened by the fish restoration efforts in the Eel River watershed aimed at reclaiming some of the diverted water and improving conditions in the Eel River.

The State Water Rights Division has designated tributaries to the Russian River as fully appropriated for the period April 1 through December 14. A report and proposed process for handling new permits has been developed. Concern has been expressed regarding excessive summer diversions and temporary diversion structures impacting salmonid resources in Russian River tributaries as well as maintaining and protecting coldwater recharge areas and springs in the tributaries. Future urban and agricultural development in the Russian River watershed should be evaluated in light of diminishing water resources, including potential decreases from the Eel River diversion.

Channel down-cutting in the middle reach from entrapment of sediments behind dams and removal of gravel from the streambed, the danger of off-channel gravel pits being captured by the river, and loss of riparian corridor were identified by a Coastal Conservancy study of the river.

Point Source Issues

Point source issues are addressed in Goals 1 and 2.

Nonpoint Source Issues

Current Activities

- Evaluate the adequacy of water quality objectives and the current regulatory structure in attaining federal Endangered Species Act requirements for threatened salmonids.
- Evaluate existing data for compliance with water quality objectives related to fisheries. Propose new objectives and amend the water quality control plan.
- Establish a monitoring protocol to ensure that any changes in water quality objectives can be confirmed.
- Identify mitigation and enhancement activities that could influence the changes in water quality objectives for listed and unlisted species.
- Identify, describe and prioritize specific projects that could enhance the quality of surface water for the benefit of listed and unlisted species.
- Refine the Russian River water quality model.
- Continue to review timber harvest operations in coordination with the California Department of Forestry for control of sediment discharges.
- Continue to work with the dairy industry to promote management practices that protect water quality.
- Support the Marin and Southern Sonoma County RCDs erosion control efforts in the Stemple Creek watershed.
- Maintain current involvement in the Russian River Watershed Council, improving interagency coordination and public involvement.
- Continue outreach to the grape growing industry to reduce impacts of vineyards on water resources, especially the anadromous fishery.
- Continue to coordinate with local agencies/groups in the support of local non-regulatory, cooperative efforts for erosion/sedimentation controls.
- Continue to coordinate with the Water Rights Division regarding water supply issues.

Additional Needs

- Promote additional outreach and enforcement where appropriate for improved road maintenance and sediment control on rural residential roads.

- Continue to expand efforts to conduct additional outreach and enforcement where appropriate to promote control of soil erosion and riparian habitat reduction by conversion of hardwood and coniferous forest to hillside vineyard.
- Promote habitat/riparian restoration in existing agricultural areas. Improve habitat conditions for anadromous fishes by assisting and coordinating with CDFG and local agencies in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation.
- Promote restoration, enhancement, and maintenance of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups.
- Implement and enforce best management practices for nonpoint source regulation; react to complaints and conduct enforcement.
- Evaluate the sediment data collected by the US Geological Survey for the Russian River with respect to erosion and sedimentation issues and the anadromous fishery.
- Evaluate and pursue methods for evaluating sediment sources (e.g., satellite imagery, aerial photography) and coordinate with other agencies.
- Pursue innovative approaches to funding and volunteer monitoring.
- Monitor for toxic chemicals in water, sediment, and tissue. Pursue innovative approaches to funding and volunteer monitoring.
- Coordinate with California Department of Fish and Game in their salmonid restoration activities; promote protection of those areas.
- Increase coordination with the local planning agencies.
- Promote awareness of the effects of increased erosion on channel morphology.
- Expand development of interagency coordination and cooperation on addressing erosion problems related to hillside vineyards.
- Develop a Basin Plan action plan or other mechanism to formally recognize the Fish Friendly Farming certification program for grapegrowers as supporting water quality.

GOAL 4: Protect/enhance warmwater fisheries

The protection and enhancement of warm water fisheries and ecosystems (beneficial use WARM) also is important in the Russian/Bodega WMA.

The issues and actions overlap significantly with those for coldwater habitat and are not restated here.

GOAL 5: Protect aquatic life and public health in Bodega Harbor

Bodega Harbor supports the following beneficial uses: REC-1, REC-2, COMM, COLD, MAR, WILD, MIGR, SPWN, AND SHELL. The local sewage treatment plant, marina and dry dock operations, and storm water runoff from agricultural, urban, and industrial sites threaten those uses to varying degrees.

Point Source Issues

Current Activities

- Inspect the marina and dry dock operations, and the dredge-tailing site.
- Inspect and update Waste Discharge Requirements for Bodega Harbor Wastewater Treatment Plant.

Additional Needs

- Review and inspect selected industrial storm water permit holders.

Nonpoint Source Issues

Current Activities

- Continue working with individual agricultural operations to improve management practices.

Additional Needs

- Evaluate the extent of complex organic contamination in sediments in Bodega Harbor.
- Determine the need for cleanup and begin cleanup action.
- Develop a monitoring program for the Bay, including water, sediment, and tissue monitoring.
- Eliminate discharges currently not under permit or other regulation.
- Determine sources and extent of sedimentation in Cheney Gulch and refer concern to Sonoma County Planning Department or other responsible agency.
- Work with agricultural, silvicultural, and other runoff discharges, primarily through grant-funded projects, volunteer monitoring coordination, and public education and outreach; conduct enforcement.
- Improve agency coordination regarding runoff issues and marina and dry dock operations; encourage the pursuit of a 205(j) grant.
- Review and inspect critical construction storm water permit holders.

GOAL 6: Objectives attainment in the Laguna de Santa Rosa

High ammonia concentrations threaten aquatic life in the Laguna, as do frequent events of low dissolved oxygen.. The 1995 TMDL and a waste reduction strategy (WRS) require revision to fine-tune the estimates and goals. Implementation monitoring documents an improvement in nitrogen concentrations to the point of meeting the interim instream goals for nitrogen. Dissolved oxygen appears to be largely dependent on internal processes in the Laguna and requires further investigation to support revision of the TMDL and strategy.

Storm water discharges to the Laguna watershed are addressed under the existing municipal NPDES permit and individual general storm water permits. Goals for reductions of nitrogen and oxygen demanding substances are included in the TMDL. The City of Santa Rosa and County of Sonoma have instituted measures to meet those goals. Ammonia goals for the Laguna were met ahead of schedule, however dissolved oxygen continues to be a problem.

Point Source Issues

Current Activities

- Maintain NPDES permit oversight for the dischargers to the Laguna, including the City of Santa Rosa's wastewater reclamation plant and storm water discharges.

Additional Needs

- Evaluate load estimates for point source discharges, which includes analyzing data from discharges from the Laguna wastewater reclamation plant and storm water.
- Revise load estimates and the WRS to more accurately reflect conditions in the Laguna and status of dischargers.

Nonpoint Source Issues

Current Activities

- Continue to implement the plan for reduction of nutrient and organic matter loading; maintain liaison with RCDs and Sonoma-Marin Animal Waste Committee.
- Determine the level of water quality objectives and waste load strategies attainment, including biological assessment.

- Continue to promote restoration and enhancement of riparian areas.
- Expand the hillside vineyard outreach program to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water and conduct enforcement activities as needed to address erosion from hillside vineyards.

Additional Needs

- Coordinate activities with other agencies and groups, using cooperative, non-regulatory programs.
- Work cooperatively with agricultural and other runoff discharges; conduct enforcement.
- Encourage the maintenance of riparian vegetation along the banks of streams.
- Revise load estimates and the WRS to more accurately reflect conditions in the Laguna and status of nonpoint source loads.
- Continue to expand effort to identify erosion and sediment sources and potential sources related to new development of hillside vineyards
- Expand outreach on best management practices for hillside vineyards, including further development of interagency coordination and cooperation on addressing erosion problems.

GOAL 7: Stemple and Americano Creeks Waste Reduction Strategies

This goal provides for the continued implementation of a waste reduction strategy for the Stemple Creek watershed to meet dissolved oxygen and ammonia objectives. It will be used as a model for Americano Creek in the future. For that reason, only the Stemple Creek activities are described below.

Grazing, nonpoint source impacts from the Sonoma County landfill, and other erosion processes impact Stemple Creek and the Estero de San Antonio to varying and largely unquantified degrees. The WRS addresses sediment and nutrient issues, but requires continued involvement and additional investigations and outreach. Continued oversight of the TMDL and attainment strategy is needed. The Sonoma County Landfill near the headwaters of Stemple Creek is under evaluation in relation to its contribution of contaminants of concern.

Point Source Issues

Current Activities

- Continue regulatory oversight of the Sonoma County Landfill including surface and ground water investigations.
- Continue investigation of the US Coast Guard Petaluma Training Facility Wastewater Treatment and Disposal Facilities and wet weather operational problems.

Additional Needs

- Investigate the impacts to ground water by petroleum products and other toxic materials from leaky underground tanks and any other sources.
- Work with the US Coast Guard Petaluma Training Facility on leaky underground tanks and other sources.

Nonpoint Source Issues

Current Activities

- Continue on-going data analysis and water quality data collection.
- Continue to encourage the maintenance of riparian vegetation along the banks of streams.

Additional Needs

- Coordinate with the RCDs on public participation and in compiling land use information to support a watershed runoff model.
- Implement and enforce best management practices for nonpoint sources, including work with agricultural, and other runoff discharges; conduct enforcement.
- Investigate the nonpoint source impacts of the Sonoma County Landfill on the surface water and ground water in the Stemple Creek watershed.

GOAL 8: Water Rights Coordination

Water use in the WMA has increased over the years, with competing demands among agriculture, domestic, and wildlife/fishery uses creating conflict over availability. Concern has been expressed regarding excessive summer diversions and temporary diversion structures impacting salmonid resources in Russian River tributaries. We are increasing our coordination with the state Water Rights Board and reviewing water rights permits for water quality concerns. The issues associated with water diversions are covered under Goal 3.

GOAL 9: Assessment of Salmon Creek and other tributaries

Little is known about the water quality condition of the coastal tributaries between the Russian River to the north and Americano Creek to the south. Concerns have been raised by the public regarding sedimentation, water temperature, nutrients, and salmonid habitat values. This goal provides for water quality monitoring and water quality problem assessment in Salmon Creek and other coastal tributaries.

Current Activities

- Actions associated with this goal are contained in Goal 3.

Additional Needs

- Perform water quality sampling and cursory watershed assessments for Salmon Creek and Cheney Gulch.
- Evaluate the need for assessments in other coastal tributaries south of the Russian River and prioritize them for future assessment.

Other More General Additional Needs for the Russian/Bodega WMA

1. Identify ways to speed up permit process with other agencies
2. Seek funding for additional needs
3. Promote incentives for landowners
4. Use focus groups to address specific issues or geographic areas
5. Maintain a database of projects and actions
6. Promote grants for improved watershed health

BUDGET

The budgeting process associated with the watershed planning process includes an itemization of activities by categories that are standardized statewide. As such, it doesn't specifically detail all individual actions in a WMA as laid out in the *Water Quality Goals and Actions* section. However, it is a representation of the current knowledge of funding levels across a wide spectrum of categories. The actual individual actions that are performed in a WMA are within those categories and will be specifically identified as we proceed through the planning process. We will attempt to fund the highest priority actions as identified in each WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

The *Budget* section of this document contains a resource allocation table which summarizes each WMA budget as well as regional activities for the entire region. Appendix D contains information specific to the nonpoint source program.

APPENDIX 2.1-A**Partial list of agencies and groups in the Russian/Bodega WMA**United States

Environmental Protection Agency

Army Corps of Engineers

This agency has constructed and operates the two major dams on the Russian River: Lake Mendocino on the East Fork at Ukiah and Lake Sonoma on Dry Creek near Healdsburg. The Army Corps is also responsible for administering the CWA Section 404 permits on dredge and fill activities. They are in the early stages of a reconnaissance survey (initiated in late 1996) of the Russian River basin preparatory to a study of potential actions to improve aquatic and geomorphic functions.

Geological Survey

National Biological Service

Fish and Wildlife Service

National Marine Fisheries Service

Natural Resources Conservation Service

Native American

Pomo Basket Weavers

YaKaMa (need correct spelling)

others?

California State

California Environmental Protection Agency

Department of Fish and Game

This agency is charged with the protection and enhancement of fish and wildlife resources in the State.

In the WMA, the department has active programs for fishery enhancement and protection.

Department of Health Services

Department of Pesticide Regulation

Office of Environmental Health and Hazard Assessment

Department of Toxic Substance Control

Department of Water Resources

California Coastal Conservancy

This agency began a Russian River enhancement program in 1991, involving two Technical Advisory Committees (Sonoma and Mendocino Counties) to identify issues on the mainstem and develop alternatives to enhance public access and the resource values of the mainstem Russian River. Their outreach and public participation has been extensive.

UC Agricultural Extension

Hopland Research and Extension Center

Sonoma County

Water Agency

This agency supplies domestic water to southern Sonoma and northern Marin counties from wells located in the underflow of the Russian River in the Wohler and Mirabel areas. They have priority water rights on lakes Mendocino and Sonoma and are required to meet minimum flows in the Russian River mainstem based on yearly water yield categories (dry, normal, wet, etc.). The agency is beginning a program to install an early warning network of remote monitoring station to alert them to possible contamination of the water supply. They are currently involved in a Russian River watershed assessment. They are also responsible for the county's wastewater treatment systems.

Planning Department

This local agency is charged with land use planning in Sonoma County. Beyond development and maintenance of the county General Plan, they are involved in the development and execution of an Aggregate Management Resources Plan to address gravel extraction issues in the WMA. The General Plan EIR contained specific reference to erosion control measures for the county.

Department of Environmental Health
Agricultural Commissioner's Office
Redevelopment Agency
Economic Development Board

Mendocino County

Water Agency

This agency is actively involved in a water supply, water quality, and channel structure issues in the Mendocino County portion of the Russian River watershed. They are finishing a CWA Section 205(j) project to develop a gravel management plan for the Russian River in Mendocino County.

Planning Department

Department of Environmental Health
Agricultural Commissioner's Office

Local Agencies

City agencies

North Marin Water District
Resource Conservation Districts
Mendocino County RCD
Sotoyome RCD

This RCD is spear-heading a number of efforts aimed at watershed stewardship and restoration of Russian River tributaries, including interagency coordination, the Northwest Emergency Assistance Program (NEAP) for fishery restoration activities, Clean Water Act Section 205(j) and 319(h) grant projects for erosion control, watershed stewardship, volunteer monitoring, and fishery restoration. More detail is provided in Appendix 2.1-C.

Goldridge RCD

Southern Sonoma County RCD

Marin County RCD

Mendocino Water Supply and Flood Control District

local water districts - numerous, to be compiled later [under the 205j project back in 1985 or so, we compiled a list of local water districts - do we want to give that to Pamela and ask her to update it based on calls to health departments and the water districts themselves]

city planning departments

Santa Rosa Waterways Plan

Santa Rosa Creek restoration activities

city public works departments

Eel/Russian Commission

This commission was formed to coordinate water resources issues in the two basins in light of their sharing a common headwaters with the Eel-to-Russian interbasin diversion.

Public Interest Groups

Green Valley Creek Watershed Advisory Group (WAG)

Laguna Foundation

This nonprofit organization is committed to protection and enhancement of the wetlands and other resource values of the Laguna de Santa Rosa. Several areas in the Laguna have been preserved or restored due to their involvement.

Laguna Coordinated Resource Management and Planning (CRMP) Task Force

This facilitated effort was started by the City of Santa Rosa and the Sonoma County Water Agency in 1994 to identify and help resolve issues in the Laguna de Santa Rosa watershed. Membership is

extensive, including local, state and federal agencies, public interest groups, individual landowners, and interested persons. The Task Force completed a management plan to assist in protecting and improving the resources in the watershed in early 1995.

Farm Bureau

Western United Dairymen

United Winegrowers

Stemple Creek WAG

Russian River Watershed Protection Committee

Friends of the Russian River

Russian River Alliance

Vernal Pool Task Force

Environmental Resource Council

Sonoma County Taxpayers Association

Trout Unlimited

Salmon Unlimited

Citizens for Cloverdale

Committee for Sensible Reuse

Surfrider Foundation

Citizens Cleanup Committee

Southwest Area 2000

Roseland Action

Russian River Watershed Council

APPENDIX 2.1-B

Monitoring and assessment needs for the Russian/Bodega WMA.

The prioritized monitoring and assessment activities below support testing hypotheses about support of beneficial uses MUN, REC1, COLD, RARE or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. Coordinated Monitoring and Assessment - \$40,000 (0.3PY + \$10,000) - FY 00-01, FY 01-02

A consortium of monitoring agencies and groups will be established to coordinate discharger self-monitoring, receiving water monitoring, stormwater monitoring, fish habitat assessments, flow monitoring, existing long-term water quality stations (4), agricultural chemical use, and special investigations like xenobiotic estrogen screening. Regional Water Board permits will be coordinated to provide the most ecologically significant, efficient, and effective monitoring strategy for the WMA.

2. TMDL Assessments - \$50,000 (0.3PY + \$20,000 lab) - FY 00-01 - FY 02-04

Continued assessment of water quality, especially nutrient and dissolved oxygen relationships is required by the Laguna and Stemple TMDL waste reduction strategies. The City of Santa Rosa and some local groups are performing chemical monitoring in both streams, but the Regional Water Board must continue to oversee the program and investigate nutrient and dissolved oxygen problems.

3. Ocean tributary assessments - \$40,000 (0.2 PY + \$10,000 lab) - FY 00-01, FY 01-02

Water quality assessments of streams tributary to the ocean excluding the Russian River are needed to determine general water quality and to serve as the basis for addressing problems associated with land uses in the watersheds, including Salmon Creek, Cheney Gulch, Americano Creek.

4. Spatial Data Assessment - \$45,000 (0.4 PY) - FY 00-01

A number of dischargers and programs are collecting surface and ground water information in the WMA. Spatial assessment of those data will provide a picture of problems associated with groundwater and stormdrain contamination and groundwater to surface water connections, as well as providing direction for developing a coordinated multi-agency approach to monitoring and assessment in the WMA.

5. Sedimentation Assessment - \$75,000 (0.5 PY + \$20,000) - FY 00-01 - FY 02-03

The Russian River watershed is 303(d) listed for sedimentation. Further assessment of existing data and collection of new information is needed to develop strategies (TMDLs) for reducing erosion and sedimentation of tributary spawning and rearing streams.

6. Sediment TMDL Development - \$750,000 (2 PY + \$500,000) - FY 03-04

Once assessment is completed a TMDL will need to be developed to identify sources and estimate loading from sediment sources in the watershed.

7. Sediment TMDL Implementation - \$160,000 (1 PY + \$50,000) - FY 03-04 and on

TMDL implementation will require development and adoption of a Basin Plan amendment, estimated to take two years to develop and another year for adoption. Continued implementation will require constant oversight and monitoring for the foreseeable future (at least 20 years).

8. Chemicals in POTWs - \$52,000 (0.2 PY + \$30,000) - FY 00-01

Petroleum products, including solvents, MTBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs.

9. Bodega Harbor Sediment Contamination - \$155,000 (0.5 PY + \$100,000) - FY 00-01

Sources of contaminants in Bodega Harbor sediments identified with the Bay Protection and Toxic Cleanup Program need additional assessment and focused cleanup efforts.

SECTION 2.2

KLAMATH WATERSHED MANAGEMENT AREA

This WMA is targeted for a ten-year cycle to coincide with the Federal Energy Regulatory Commission's re-licensing schedule for Klamath River reservoirs.

The following discussion draws upon knowledge obtained through public input, agency contacts, and the personal experience of Regional Water Board staff. What is presented in this document is a summary of our knowledge regarding water quality issues and the existing and planned actions at this time.

MANAGEMENT AREA DESCRIPTION

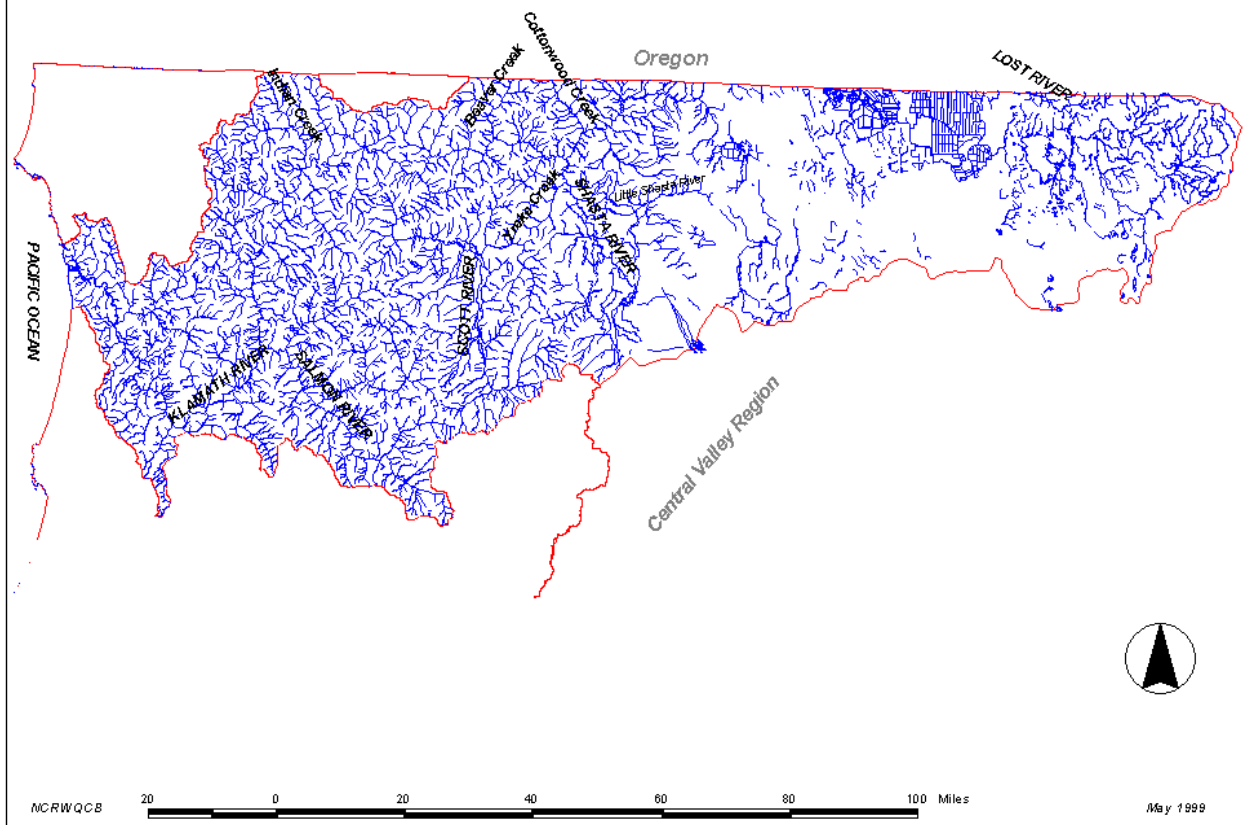
The Klamath River Watershed Management Area (most of that portion of the overall Klamath River Basin which is within the State of California) has been divided into three sub-basins: Lower Klamath, Middle Klamath and Upper Klamath (Figure 2.2-1). This division facilitates our budgeting process and it also helps us recognize that the size of the overall basin, and its diversity in climatic and geologic facets and land uses affect water quality in different ways in different sub-areas of the basin. In addition to this for-convenience segmentation of the watershed area within California, we recognize that roughly half of the watershed is north (and mostly upstream) of the California-Oregon state border. This “segment” of the basin in Oregon has profound effects on the quality and quantity of the Klamath River in California. The Trinity River watershed, though within the overall Klamath “Basin”, is not included in the Klamath River Watershed Management Area. Each sub-basin is described below.

The Lower Klamath sub-basin encompasses that portion of the Klamath River and its tributary watershed downstream from the Scott River to the Pacific Ocean (excluding the Trinity River), and is 2,564 square miles in area. Included in the watershed are the Salmon River, Blue Creek, numerous smaller perennial streams, and the Klamath River delta/estuary. The area is largely rugged, steep forest land with highly erodible soils. The population of the area is small and scattered. Water quality issues have arisen as a result of unauthorized discharges or inadequately treated residential sewage. In one past instance, the Regional Water Board adopted enforcement measures and sponsored grant-funding assistance for the community of Happy Camp where flood damages caused raw sewage discharges. This issue was resolved after a community-wide sewerage system was built. Other issues have included:

- Several to-the-river garbage dumps have been abated;
- Mill sites and industrial/commercial activities which had direct discharges and spilled petroleum products have been cleaned up;
- Acid-drainage-producing mine waste sites also are under regulation by the Regional Water Board.

While such “past” issues now require diligent regulation, today’s water quality issues in the sub-basin are related to the salmonid-habitat qualities of the mainstem river and the effects of silvicultural activities on both federal and private lands to the tributaries. These issues include high summertime temperatures, sedimentation, erosion, mass wasting and stream modifications which affect salmonid habitats, and forest land herbicide applications which threaten domestic water supplies.

The Middle Klamath sub-basin is 2,850 square miles in area and encompasses that portion of the Klamath River and tributaries between the confluence of the Klamath and Scott Rivers and Iron Gate Dam.

Figure 2.2-1: Klamath WMA

Included in the watershed are the mainstem Klamath, the Shasta and Scott River watersheds and lesser tributaries. The two major tributaries, the Shasta and Scott Rivers, receive localized precipitation as well as snow and glacial melt from nearby mountain ranges. The quality of water from Iron Gate reservoir (which is the sum total of the effects of reservoir limnology, up-river irrigation development and hydropower hydrology), agriculture in the Shasta and Scott Valleys and silvicultural activities in the remainder of the drainage are the major issues. Other water quality issues are related to surface water and groundwater contamination from toxic chemical discharges in the Weed and the Yreka areas. Voluntary nonpoint source control projects and monitoring activities in the Shasta and Scott valleys have resulted in improved response by the local agricultural and timber-related interests and formation of Coordinated Resource Management and Planning (CRMP) groups in the Shasta and Scott, and a French Creek Watershed Advisory Group (WAG). Remedial actions have reduced and/or eliminated problems with toxic chemical discharges. (Appendix D)

The Upper Klamath sub-basin includes watershed areas in California which are upstream of Iron Gate Dam. Many natural and human-altered watershed elements above Iron Gate and across the California-Oregon border affect the quality and quantity of water which exits Iron Gate Dam, supplies the mainstem flow and affects (both supports and jeopardizes) the beneficial uses of the River within California. The complexity of this sub-basin is magnified by jurisdictional issues associated with water-delivery/utilization infrastructures (including the Federal Klamath Project irrigation), hydropower, endangered species, tribal rights, lake-level-management demands for Upper Klamath Lake, the waters criss-crossing the California-Oregon border, and

minimum flow requirements in the Klamath below Iron Gate Dam. Considerable energy is being expended in State/Federal cooperative efforts to assist in resolving trans-border issues. While we recognize that water quality assessment, planning, and management should be conducted with regard to the issues, the realities of the California-Oregon border and other jurisdictions color the perspective and intensify the issues.

Most of the Upper Klamath watershed area is in Oregon. The primary sub-watershed in California is the Lost River watershed, which is 1,689 square miles in area. That sub-watershed, which is about half-and-half in California and Oregon, encompasses Clear Lake Reservoir and most of its tributaries in California, the agricultural and contributing areas in Oregon, and, back in California, the agricultural and wildlife-refuge areas which were once the bottom of Tule Lake and the Lower Klamath Lake. The Lost River basin was, until Euroamerican settlement and development including farmland "reclamation" and construction of the railroad, periodically connected to the Klamath River via the marshes which occurred south of what is now the community of Klamath Falls, Oregon. Further south, the marsh-river systems dead-ended in Tule Lake that was a closed part of the basin with no natural outlet. The lower end of this basin has been modified to support agricultural crop production, and consequently an artificial outlet has been provided for Lost River water to be pumped into Lower Klamath Lake. Lower Klamath Lake was originally a backwater of the Klamath River, but has been extensively modified for agriculture and a wildlife refuge. Water leaving that system is discharged northward, back into Oregon to the Klamath River, via the Klamath Straits Drain. Much of the former wetlands in the basin is now intensively managed for wildlife as part of the Klamath Basin National Wildlife Refuges, with mingled and overlapping cropping and wildlife uses.

Primary beneficial uses in the basin are domestic, agricultural and industrial water supply, cold and warm water fisheries, and recreation. The shortnosed sucker (*Chamistes brevirostris*) and Lost River sucker (*Deltistes luxatus*), native to the watershed, are listed as endangered under the federal Endangered Species Act of 1973.

Both Oregon and California have CWA Section 303(d) issues water quality impairment in the Lost and Klamath rivers. A joint effort to reconcile the inconsistencies between the Oregon and California standards and addressing the nonattainments is under way. A primary element of that effort is to first define the roles of the various states' agencies in these interstate waterbodies.

IMPLEMENTATION STRATEGY

Significant strategy development and implementation for water quality protection and improvement are occurring in the management area through action by many agencies, tribes, and individuals. We recognize that the WMA problem identification, watershed assessment, and strategy development establish an on-going process, and that further input will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. The actions are prioritized in recognition of shifting resources. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc.

Clean Water Act Section 319(h) grants supported the development of a Klamath Resource Information System (KRIS), a computerized database and data analysis tool. The KRIS system provides access to and analysis capabilities for a large body of water resource and land use information, valuable in making the multitude of management decisions necessary in this large and complex watershed.

A working staff level watershed team within the Regional Water Board office is coordinating activities within the management area, each taking into account the level and timing of others' efforts. It is that team that has developed and prioritized the actions. This is not a new concept to the Regional Water Board, but an enhancement of what occurs to a large degree and with additional public participation. Likewise our broad interagency approach will enhance the watershed planning effort, providing the added perspective of

the users of the resources, identifying issues not currently apparent to us, and refining the plan in the process.

Institutional Framework

The following discussion is a brief summary of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined through the public participation process. A matrix of agency's abilities and jurisdictions with respect to the identified goals will be compiled to provide an overall picture for the management area.

The Water Quality Control Plan for the North Coast Region (Basin Plan) and this Initiative recognize that the Klamath watersheds are culturally, climatically and geologically diverse. The watershed provides some of the highest-quality water resources of the Region, yet it simultaneously produces some of the most-challenging water-resource conflicts. The Basin Plan contains specific water quality objectives for many index points within the Basin and it provides implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provision of the Basin Plan is its discharge prohibitions section, which prohibits direct waste discharge to all freshwater surface waters in this management area. The one exception to this prohibition results from the situation of City of Tulelake at a place which was once submerged by the waters of Tule Lake. This City is permitted to discharge its treated municipal wastes into the irrigation-drain system which eventually is pumped from the low point of the valley into the higher-elevation waters (a vertical lift of some .. feet) of the Klamath River in Oregon.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. In addition, staff have coordinated assessment activities in the basin to enhance communication, identify water quality issues, identify water quality monitoring needs, and improve coordination amongst agencies and public interest groups.

The Klamath River Basin Fisheries Task Force (KRBFTF) was authorized by Congress in 1986 and is overseeing a 20-year effort to restore salmonid fishery values to the Klamath watershed. It is headed by a multiple representative Task Force that makes funding, management, and scheduling decisions regarding fishery restoration efforts in the watershed. We coordinate our activities closely with the KRBFTF.

The Klamath Basin Ecosystem Restoration Office (ERO) is mandated and funded to coordinate ecosystem restoration in Oregon's portion of the basin. It also holds an annual conference in the upper basin to further communication and acts as a clearinghouse for information and coordination. The federal Bureau of Reclamation, Fish and Wildlife Service, and National Biological Service all are actively involved in the ERO.

Staff intend to continue coordinating with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized. Descriptions of how the major agencies and groups roles and jurisdictions affect water quality is provided in the assessment section, a list is offered for informational purposes in the Appendix.

Summary of Activities

The general emphasis in the watershed is to continue interagency coordination, assess existing conditions and uses, focus reduction efforts for sediment, nutrient and oxygen-demanding loadings to selected sub-watersheds, assess conditions and operations to determine where water temperature and nutrient improvements are feasible, and support efforts to improve riparian areas. We plan to increase effort in assessment, evaluate objectives attainment, and maintain the nonpoint source grant program.

Assessment:

We intend to focus assessment efforts on identified concerns regarding objectives attainment and integration with Oregon's standards (e.g., dissolved oxygen, temperature, sediment, un-ionized ammonia) and evaluation of the need to develop an action plan for the management area to be included in the Basin Plan. Interagency

coordination is a large part of the effort, since many agencies, tribes, and groups are collecting information and have jurisdiction.

A Clean Water Act grant supported an assessment effort in the Upper and Middle Klamath watersheds. It involved considerable interagency coordination and data sharing with the Bureau of Reclamation, National Biological Service, PacifiCorp, University of California at Davis, California Department of Fish and Game, Oregon Department of Environmental Quality and others. The overall assessment is aimed at describing the water quality relationships in the Klamath River downstream to Ike's Falls. Some minor assessment activities are occurring in the major tributary streams, notably the Lost, Shasta, and Scott rivers. Additional investigations into pesticides in the Tulelake area may be warranted in the future.

In the Scott River watershed, sedimentation and temperature studies need enhancement, especially regarding sediment inputs from the east side of the watershed. A federal grant to investigate sediment sources in Moffit Creek was awarded in 1999. The local community is involved in a CRMP process that needs assistance in developing a TMDL waste reduction strategy for sediment and temperature.

The Shasta River watershed faces similar needs regarding local community assistance in developing a TMDL waste reduction strategy for temperature and dissolved oxygen. Further investigation of toxics issues in the upper watershed near Weed should be sought to determine the extent to which dioxins, metals, and MtBE contamination of local sites is impacting the beneficial uses of the Shasta River.

Monitoring:

Long-term monitoring is a goal for the entire WMA, however at this time we are focusing on the mainstem. We will conduct shorter assessments in tributaries if mainstem data indicate potential problems. Based on the outcome of the assessment, long-term monitoring sites will be established at the Oregon-California border and Iron Gate Dam, with continued summer and fall monitoring at Iron Gate Dam and downstream.

Aside from the assessments indicated above, monitoring of water temperatures and sedimentation in the lower Klamath tributaries may become an issue for development of TMDL waste reduction strategies.

Additional detail on assessment and monitoring needs and priorities are presented in Appendix 2.2-B.

Core Regulatory:

We will continue (through and beyond this first cycle) to support the core regulatory program at its current level with regard to compliance inspections, waste discharge orders and enforcement (including the Yreka STP), groundwater and toxic site mitigation/remediation activities, and coordination with the public and other agencies in pollution prevention and data gathering.

Ground water:

The underground tank program and remedial work on existing localized ground water contamination will continue. Continued outreach regarding hazardous waste handling and potential ground water contamination is a priority in preventing future problems. The extent to which ground water contamination influences surface waters may be an issue in the Weed and Yreka areas, requiring additional investigation in the future.

Water Quality Certification:

We process Section 401 water quality certifications as they are requested, however will need to scrutinize them more closely with respect to the Endangered Species Act listing of coho and chinook salmon.

Nonpoint Source Program:

We will continue to work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution. Our active outreach program will continue,

as well as the CWA Section 319(h) grant program. Appendix D contains additional information on the Nonpoint Source Program.

Response to the Section 303(d) requirements for waste load reductions will necessarily include assessment of the feasibility of water quality objectives attainment on the Lost, Klamath, Shasta, and Scott rivers. The data will support assessing the relationships of land and water use to objectives attainment, nonpoint source control alternatives, and development of potential management changes to achieve water quality objectives. Additional information is contained in Section 2.7.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

Local Contracts: Our active outreach program will continue, as well as the CWA Section 319(h) and 205(j) grant programs.

Water Quality Planning:

The Basin Plan review process necessarily feeds into the activities in this WMA to the extent issues are identified that affect the Klamath River WMA:

- review of water quality problems in the Lost, Klamath, Scott, and Shasta rivers
- evaluation of dissolved oxygen and temperature objectives,
- consideration of a nutrient objective,
- review of Nonpoint Source Control Measures.

Evaluation and Feedback

The progress of implementation will be reviewed on a yearly basis, and adjustments made to the future year's work based on that review. Additionally, an evaluation of the process will occur at the end of the ten-year cycle that will determine the changes to be made in the program overall. A running tally of completed activities will be placed in an appendix to this section.

During the first five years of this Klamath WMA planning cycle, Regional Water Board staff conducted and participated in several multi-agency water quality assessment projects. These included the 1995 Lost River Water Quality Characteristics project (USEPA 319(h) grant), the TMDL data-gathering project (USEPA mini-grant), and the two-year water quality monitoring project covering areas from Tulelake in the Upper Klamath downstream to Ike's Falls in the Lower Klamath (USEPA 104(b) grant). These efforts built upon our knowledge of water quality conditions and problems from previously-conducted assessments and enhanced inter-agency and public coordination. Problem identification has become much more clear to us on some issues, and the solutions range from implementation of known, standard Best Management Practices to those which are highly complex and evasive, as discussed below. Unfortunately, funding to continue the assessments is not on the horizon, and we will rely heavily on local efforts that may not be particularly suited to our needs.

ASSESSMENT AND PROBLEM IDENTIFICATION

The Klamath River WMA is divided into three sections for ease in describing the various water quality problems and relationships. As we continue through the assessment phase, these sections will likely expand in relation to the knowledge we accumulate with respect to water quality and land use management.

Upper Klamath sub-basin.

Land uses and associated hydrologic and water quality factors in the Klamath basin change dramatically as we move downstream through the watershed areas. The uppermost Lost River basin around Clear Lake,

characterized by high desert stream systems, continues to be dominated by cattle grazing on both US Forest Service and private lands. The area is sparsely settled, with Clear Lake being part of the Klamath Basin National Wildlife Refuges. Clear Lake was a natural waterbody whose outlet was dammed in the early 1900s for two main purposes: 1) to retain upper-basin runoff, in a place where it would evaporate, to help accelerate the reclamation of the lower parts of the Klamath Project farmlands; 2) is to provide increased storage of water for downstream irrigation (which came into play after the lower basin was “reclaimed”). The water released from Clear Lake storage flows downstream in the Lost River through the agricultural areas of the Klamath Project in Oregon. A diversion canal has been constructed to link the Lost River to the Klamath River. Water from both river systems is then transported through the Lost River to irrigate more lands in Oregon and California upstream of Tulelake.

Land uses on the California side in the lower Lost river basin are primarily 1) crop agriculture such as grains, potatoes, and onions, 2) grazing and 3) lands administered for the National Wildlife Refuge. Small agriculturally-based towns such as Tulelake provide the centers for commerce. This pattern of land use started about 1860, then accelerated at the turn of the century when the nutrient rich bottom lands and wetlands started to be reclaimed by the US Government for homesteading and agriculture. Tule Lake sump and Lower Klamath Lake have been diked and managed to accommodate both agriculture and waterfowl. These are shallow, nutrient-rich waterbodies. These lakes receive the agricultural drainage described above before it is then pumped back to the Klamath River north into Oregon upstream of the California-Oregon border.

The Klamath Basin in Oregon is dominated by the large, shallow, nutrient-rich Upper Klamath Lake. Major watersheds flowing into Upper Klamath Lake support silvicultural and grazing land uses for the most part. Upper Klamath Lake has been dammed (raising its surface by about 20 feet) to provide up to 735,000 acre-feet of storage beyond its natural capacity and enable release of water for Klamath Project irrigation. Much of the wetlands around Upper Klamath Lake have been reclaimed for agriculture and grazing. Klamath Falls, Oregon, is the major population center, adjacent to Upper Klamath Lake. Lumber mills, Kingsley Field AFB and agriculture associated with the Klamath Project are its economic bases. Klamath Falls is now growing and diversifying its commerce, although agriculture and timber interests still dominate the economy.

The Klamath River begins at the point where the outflow from Upper Klamath Lake is released through the modified natural channel known as Link River and also via hydro-power systems and thence enters Lake Ewana. This lake is controlled by Keno Dam. Below Keno the river flows through rugged canyon areas into California. It passes through the John Boyle hydropower structures along its way. White water rafting is popular from John Boyle Dam down to the California border. Since 1965, when a US Army Corps of Engineers flood-abatement project was constructed to drain Butte Valley/ Meiss Lake, there is, during abnormally wet years, an occasional discharge to the Klamath River from the agricultural Butte Valley. This drainage discharge was a source of concern, because of its muddiness and alkalinity, during 1965-66 and 1996-97, when it was used to drain winter floodwaters from the valley.

Upon entering California, the Klamath River flows into Copco Reservoir, through its hydro-power system and then into Iron Gate Reservoir. These reservoirs were created by dams for power generation and to regulate flow regimes down stream. Permanent residences and cabins dot the shoreline of Copco Lake. Both cold and warm-water fishing are popular in the nutrient-rich waters. Iron Gate Dam blocks upstream salmon migration at this point in the Klamath River. Iron Gate Hatchery is located just downstream of the dam.

Middle Klamath sub-basin

The Middle Klamath Basin begins at Iron Gate Dam, downstream of which enters the Shasta River. The Shasta River valley has a substantial cattle-grazing industry on private lands irrigated extensively by streams in the watershed. Dwinnel Dam on the upper Shasta River controls stream flows for downstream irrigation, and the movement and distribution of water is complex. The City of Weed, which is supported by the forest-

products and tourist industries, is situated upstream of the reservoir,. The Shasta River historically was the top salmon-producing tributary in the Klamath River system. The small cities of Yreka and Weed are the primary centers of population.

The Scott River is the other major tributary in the Middle Klamath basin. It also has a substantial cattle grazing industry irrigated extensively from streams in the watershed. Silvicultural activities on both USFS and private lands dominate the steep, highly erodable watersheds flowing into the valley floor. The Scott River alluvial gravels were mined extensively in the 1800's. That activity and more-recent channeling for flood control altered its morphological characteristics dramatically. The Scott River also supports substantial salmon runs. Small towns in the valley support the timber- and grazing-dominated economies.

Lower Klamath sub-basin

The Lower Klamath Basin below Scott River is characterized by mountainous terrain used extensively for silvicultural purposes on both USFS and private lands. Logging is particularly heavy on private corporate lands in the Redwood region of the lower basin. The small communities along the Klamath are almost all timber-based. The Karuk and Yurok Tribes make their ancestral communities along the lower Klamath River, with fishing being an important part of their cultures. The Lower Klamath River recreational salmon fishery is popular. There has been both historic and recent mining activity on some of the tributaries such as Indian Creek.

WATER QUALITY GOALS AND ACTIONS

The following goals and supporting actions reflect a synthesis of the problems and issues in the WMA. It is recognized that these goals and their priorities are from the best professional judgment of Regional Water Board staff, and will be refined with public participation activities in the WMA.

The following broad goals provide a focus for water quality control activities:

1. protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate)
2. protect and enhance warmwater and endangered aquatic species
3. maintain the viability of agriculture and timber uses
4. maintain recreational opportunities
5. protect groundwater uses

Actions to support achieving those goals are arranged by individual sub-basins and/or watersheds due to the size of the WMA and the diversity of issues and jurisdictions. Accordingly, there is overlap in the actions amongst some geographic areas. The summary listing of actions is in priority order for all actions, with some distinctions based on geographic area, but largely incorporating geographic concerns in the prioritization.

Upper Klamath River Basin - Lost River Watershed

Livestock which graze on public and privately-owned lands adjacent to streams which flow to Clear Lake have free access to the streams, thus causing trampled banks (sediment discharge) and loss of riparian vegetation (nutrient release, increased water temperature and widely-ranging temperature extremes. Unshaded, sediment-laden eutrophied streams are poor-to-unsuitable habitat for RARE species; the severity of degradation to Clear Lake tributary streams varies by location, but Boles, Willow and Mowitz creeks have been assessed and are receiving remedial efforts. Lost River below Clear Lake Dam in California is substantially impaired. The current effort towards resolution to this issue is to continue to support USFS and Lava Beds RCD efforts to protect the streams by methods such as alternative watering sources and prescriptive and management measures such as stream-sensitive grazing allotments, riparian plantings, and livestock exclusion (seasonal or year-to-year rotations). This support is currently accomplished through the 319(h) grant program.

These measures are recognized as BMPs on US Forest Service land and have been widely embraced throughout the arid western basins. They are being employed by grazing allotment holders on the

Doublehead District of the Modoc National Forest and being supported and monitored under the 319(h) grant program.

Drainage from geologic weathering processes throughout the Basin, agricultural lands and wetlands conveys nutrient-rich suspended-particulate materials and dissolved materials into waterbodies which are, themselves, long-standing nutrient traps. Evaporation, transpiration, insolation and planktonic growth processes cause these waters to have very high nutrient levels, support very high plankton (algae) populations, and have widely-swinging diel dissolved oxygen, pH and ammonia-nitrogen levels. The Tule Lake sump system is highly eutrophic with consequent low dissolved oxygen levels, high pH levels, high un-ionized ammonia levels, and high water temperatures. This water quality is perceived as impaired and may become or remain toxic to and uninhabitable by native fish species, including the ESA-listed shortnose sucker and Lost River sucker. The question remains open whether irrigated agriculture and lake wetland modifications have affected this eutrophic condition to a measurable degree such that water quality beneficial uses are impaired.

The effort towards resolution of this open question is through monitoring and assessment, by the Tulelake Irrigation District, of specific field drainages. This also can be supported through California's participation with the TMDL Committee established by the Oregon Department of Environmental Quality for Klamath River and Lost River non-attainment issues. Remedial and restoration measures may include revised impoundment management (refresh stagnant lakes/sumps), enhance marsh/wetland functions to convert water-borne nutrients and particulates into plants and soil, revised land/crop management to keep nutrients and particulates on cropland and in marketable biomass, and support for fish screening the canal and drain systems at strategic points to keep the fish in the streams and Tule Lake.

The following specific actions are aimed at addressing the issues and problems described above for the Lost River watershed, and are responsive to the broader goals to: 1) protect and enhance warmwater and endangered aquatic species, and 2) to maintain the viability of agriculture:

1. continue existing level of point source compliance and complaint inspections, including NPDES, underground tank, toxic site remediations, etc.
2. continue existing level of baseline water quality monitoring and investigation of pesticide and toxics issues
3. increase staff interactions with BOR and National Wildlife Refuges to document and understand influences of Klamath Straits Drain discharges on downstream Klamath water quality and to address the issues of water quantity, conveyance, and timing issues in a manner that better protects water quality
4. increase staff interaction with ODEQ and TID on review of existing water quality objectives through the "TMDL" process and funding support for assessment of agricultural practices affecting water quality in Lost River and Tule Lake
5. continue existing level of CWA Section 319(h) grant programs for stream restoration on Clear Lake tributaries

Upper Klamath River Basin - mainstem Klamath River above Iron Gate Dam, including reservoirs

The Lost River watershed contributes to a problem downstream in the mainstem Klamath River from the commingled drainage from agricultural lands and wildlife refuges which is pumped from the area known as Klamath Straits and discharges into the Lake Ewana reach of Klamath River in Oregon. Water in Straights Drain has been used and retained in the Lower Klamath Wildlife Refuge in diked-off cells to benefit resident and migratory waterfowl. Cells are shallow areas of water that may sit for long periods of time. Because of the differences in timing of waters routed through the Klamath River/Lake Ewana system versus the Straits system and the concentrating processes which occur before water is pumped from the Straits, this drainage discharge is usually of much lower quality than the river.

Straits Drain contributes un-ionized ammonia and nutrient-rich suspended particulate materials which, in summer heat contribute to the robust algae growth potential (eutrophication) of river flows which have been

released from Upper Klamath Lake. The Drain discharge contributes to the non-attainment of desired water quality conditions in the river and is an issue to be addressed by Oregon in a "TMDL" process pursuant to Clean Water Act Section 303(d). Possible remediation of the non-attainment should consider turn-over time of water in the refuges, the timing and quantity of discharges to and from Klamath Straits Drain, and the quality of discharges to and from the Drain which can be accomplished within the primary wildlife-protection mandates of the Refuge.

Hydromodifications (dams and levees and irrigation-diversion and drain-water-removal works) which have been constructed since 1860 in the basin upstream of Iron Gate Dam have resulted in:

- diminished dry-season river flow rates,
- increased summer/fall water temperatures and impairments to WARM and RARE beneficial uses,
- arrested migration of anadromous fish,
- endangerment of fish species native only to this basin,
- development of an extensive agricultural community in Oregon and California, including the development of extensive private property on once-underwater lake/marshes and once-inhospitable canyon lands,
- development of extensive hydropower resources, and
- preservation of managed migratory waterfowl refuges.

There is, today, a range of opinion and polarization about the extent of "over-appropriation" of water resources and "ecological degradation" in the upper-basin area affected by the hydromodifications. The US Bureau of Reclamation's Klamath Project and Pacificorp's Klamath River hydropower projects are major components of the hydromodification works, but these rely, in part, on water rights and State-owned properties which were ceded to the United States by the States of California and Oregon during the development of the Klamath Project. The U S Federal Energy Regulatory Commission (FERC) licenses the hydropower resource of the Klamath River between Upper Klamath Lake and Iron Gate, subject to periodic review and consideration of public interest issues. Oregon has an adjudication of water rights underway, agencies of the United States are supporting an Ecological Restoration Office, and the California-Oregon Klamath River Compact Commission is proposing to coordinate state/federal interests within the authorities of the Commission.

The Klamath Tribe has treaty rights to water and fishery resources of the basin in Oregon, and the Karuk and Yurok have treaty and grant rights to fish and waters in California. These entities are engaged in the realization, protection and enhancement of those rights as sovereign nations on par with the States of Oregon and California; their initiatives will be expressed on any future management processes in the Basin.

The Klamath River, after it is formed and modified by the natural and man-modified processes (including releases from storage in Upper Klamath Lake, cross-connection to Lost River,, discharges from Straits Drain, wastes from riverside industrial plants and wastewater discharges from Klamath Falls and its suburban surrounds) is released from today's Keno Dam thence flows through the John C. Boyle hydropower project and drops into a nearly-wild canyon enroute to the California-Oregon border and the Copco and Iron Gate hydropower projects. Water in the Klamath River at the state border can, during hot summer weather and times of reduced river flow, be hotter than those temperatures which are healthful for cold-water fisheries. Such high temperature is attributable, in part, to natural causes, but upstream reservoir management could be a factor.

The trans-border canyon is a not only a popular white-water recreation area, it is also a reach of the river where side streams and springs add cold fresh water to the river and make the river suitable, during most of normal years, for coldwater fishery uses -- it supports a high-quality trout fishery. There are times during most years, however, when temperature and other quality factors force cold-water fish to leave the River (migrate into cooler tributaries) or perish. As part of the upcoming FERC re-licensing process, the fishery agencies of both states are looking toward resolution of this issue. Desired outcomes would be to

encourage and support PacifiCorp and BOR efforts to determine whether revised water management through the upper reservoir system, or additional deep-storage capacity, could beneficially influence water temperatures in the canyon and further downstream into California.

Water in Copco and Iron Gate reservoirs becomes thick with algae in the summer months, leading to complaints about aesthetic conditions from the public to the Regional Board. These conditions are to be expected to some degree in reservoirs in a eutrophic river system. Additionally, the Regional Water Board water quality objectives for dissolved oxygen, temperature, pH and ammonia-nitrogen/toxicity may not be in line with Oregon DEQ's findings above the border. As part of the FERC process above, the effort towards resolution would be to encourage and support PacifiCorp and BOR efforts to determine if revised reservoir water management through the system would help alleviate the problem. At the end of the extensive interagency monitoring effort we will have part of the statistical basis for re-examining those objectives and interacting with the ODEQ's standards review in the "TMDL" process.

The following specific actions are aimed at addressing the issues and problems described above for the mainstem Klamath River in the Upper Klamath Basin, and are responsive to the broader goals to: 1) protect and enhance the salmonid fishery, 2) protect and enhance warmwater and endangered aquatic species, 3) maintain the viability of agriculture, and 4) maintain recreational opportunities:

1. significantly increase staff interaction with PacifiCorp, BOR, Klamath Compact Commission, USFWS, and CDFG working towards understanding water conveyance and flow scheduling as relates to water quality factors in the FERC and SWRCB water rights licensing processes
2. continue existing level of baseline monitoring, including Hydrolab stations in Oregon at JC Boyle and Keno with emphasis on documenting water quality as it flows from above Klamath Straits Drain into Copco reservoir
3. increase staff interactions with ODEQ on review of common bi-state water quality objectives through the "TMDL" program, including CA concerns regarding Klamath water quality meeting recreation standards
4. increase staff time spent interacting with USFWS for KRIS maintenance and use
5. increase staff interaction with residents of Copco Reservoir regarding summertime nuisance conditions
6. continue existing level of grant program for stream restoration work

Middle Klamath River Basin - mainstem Klamath River and Shasta and Scott river watersheds

The discharge from Iron Gate Dam can be at water temperatures considered detrimental to salmonids. The degree that reservoir management is a factor must be determined during the upcoming FERC re-licensing process. The effort at resolution of this issue may be through Regional Board input on water quality factors to the State Water Resources Control Board at it reviews and considers "401 Certification" of the FERC re-licensing process.

Silvicultural activities have historically had a significant and adverse impact on water quality beneficial uses of the Middle Klamath Basin. The effect has been impaired stream habitat from erosion and mass wasting, and consequent declining fisheries. New laws, regulations, and State and Federal regulatory activities during the past 20 years have moderated these impacts during current logging and associated activities. The current resolution is continued Regional Board participation in the CDF Review Team process, review of sensitive federal Timber Sales, and monitoring overview of forest herbicide applications.

The Shasta River has high water temperatures and low dissolved oxygen at times during the summer. Cattle grazing affecting riparian habitat and bank stability, along with warm, flood irrigation return flow are the primary causes. The current effort towards resolution to this issue is to support local landowner efforts to restore riparian habitat and reuse irrigation return flow. This is currently supported through the 319(h) grant program. The Yreka sewage treatment plant discharges to percolation ponds in the Yreka Creek flood plain. Evidence of leakage of those ponds directly into Yreka Creek has prompted staff to work with the City of

Yreka on alternatives to percolation pond disposal of effluent. Contamination from sites in Weed and Yreka may contribute dioxins, metals, and MTBE to tributary streams. Additional assessment and monitoring may be required to assess the degree of impact and further cleanup and remediation efforts.

The Scott River has high water temperatures, no flow in locations at times, and areas of high streambed sedimentation. Irrigation canals diverting large amounts of water and cattle grazing affect the first two issues. Upslope logging and road building on sensitive and highly erosive soils affect the latter. Current resolution includes supporting local landowner efforts towards alternatives to diverting large amounts of stream flow during the Fall months, restoring riparian corridors to improve water quality, and reducing erosional sources to control stream sedimentation. Current field support comes through the 319(h) grant program activities.

The following specific actions are aimed at addressing the issues and problems described above for the mainstem Klamath River and its tributaries in the Middle Klamath Basin, and are responsive to the broader goals to: 1) protect and enhance the salmonid fishery, 2) maintain the viability of agriculture and timber uses, and 3) maintain recreational opportunities.

1. continue existing level of point source compliance and complaint inspections
2. on commercial timberland areas (federal and private) -
 - a) continue existing level of CDF Review Team meetings and inspections
 - b) increase level of review of USFS Timber Sales as well as other USFS projects
 - c) continue existing level of work with local community on sediment control in the upper Scott River watershed
 - d) continue existing level of forest herbicide application monitoring
3. continue existing grant program for stream restoration and nonpoint source control of agricultural, construction, and timberland in the Shasta, Scott, and Salmon rivers, concentrating on those issues which affect water temperature and habitat, such as riparian corridors, irrigation water discharges
4. increase staff interaction with USFWS and CDFG towards determining specific temperature needs for fish in the mainstem below Iron Gate dam and in the Shasta and Scott rivers using the FERC process to ensure adequate flows for migration and temperature maintenance
5. review grazing permits and practices for water quality compliance
6. increase baseline water quality monitoring
7. continue existing level of staff interaction with local watershed groups towards developing TMDLs in designated sub-basins

Lower Klamath River Basin

Silvicultural activities have historically had a significant and adverse impact on water quality beneficial uses of the Lower Klamath Basin. The effect has been impaired stream habitat from erosion and mass wasting, and consequent declining fisheries. New laws, regulations, and State and Federal regulatory activities during the past 20 years have moderated these impacts during current logging and associated activities.

The following specific actions are aimed at addressing the issues and problems described above for the Lower Klamath Basin, and are responsive to the broader goals to: 1) protect and enhance the salmonid fishery, 2) maintain the viability of timber uses, and 3) maintain recreational opportunities:

1. continue existing level of CDF Review Team meetings and inspections
2. increase level of review of USFS Timber Sales as well as other USFS projects
3. increase staff interaction with private timber companies to develop long-term water quality monitoring programs
4. foster adaptive management based on water quality findings
5. develop and maintain additional stations downstream of Orleans
6. continue existing level of forest herbicide application monitoring

BUDGET

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow, and will pursue additional funding for those actions we are currently unable to address.

Appendix 2.2-B details monitoring and assessment needs. The budget tables in Section 4 detail expected FY 2000-01 funding. Needs specific to the Nonpoint Source Program are detailed in Appendix D.

Appendix 2.2-A

Partial List of Agencies and groups with jurisdiction and/or interest in water quality in the Klamath WMA.

United States

Klamath River Basin Fisheries Task Force

administers a program of fishery restoration that extends from the upper Klamath in Oregon to the mouth, encompassing the three sub-basins in this plan. KRBFTF efforts are extensive and involve data gathering, information sharing and habitat restoration.

Bureau of Reclamation

Forest Service

Bureau of Land Management

Klamath Basin Ecosystem Restoration Office

Environmental Protection Agency, Regions IX & X

Army Corps of Engineers

Geological Survey

National Biological Service

Fish and Wildlife Service

National Marine Fisheries Service

Natural Resources Conservation Service

Native American

Klamath tribe

Hoopa Tribe

Yurok Tribe

Karuk Tribe

Oregon State

Oregon Department of Environmental Quality

California State

Department of Fish and Game

Department of Health Services

Department of Pesticide Regulation

Office of Environmental Health and Hazard Assessment

Department of Toxic Substance Control

Department of Water Resources

California Coastal Conservancy

UC Agricultural Extension

County and Local Agencies

Resource Conservation Districts

Lava Beds RCD

Siskiyou RCD

Shasta RCD

Irrigation districts

Tulelake Irrigation District

Klamath Irrigation District

Butte Valley Irrigation District

Montague Irrigation District

others in Shasta and Scott watershed

County Agricultural Commissioners

city planning departments

city public works departments

Companies, Organizations, and Public Interest Groups

PacifiCorp

Klamath Water Users Association

American Fisheries Society, Humboldt Chapter

Timberland owners

Farm Bureaus

Scott CRMP

Shasta CRMP

Klamath Forest Alliance

French Creek WAG

APPENDIX 2.2-B

Monitoring priorities and needs detail for the Klamath WMA

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. Nutrient and Eutrophication Studies - \$170,000 (1.0 PY + \$60,000) – FY 00-01 thru 00-05

An intensive nutrient, temperature and dissolved oxygen monitoring and assessment program was funded for two years on the upper and middle Klamath River. The effort continues with some 205(j) funds, and by other agencies and entities in the upper and middle Klamath River without significant involvement by Regional Water Board staff. We should be collecting data specific to our needs for TMDL development and implementation of nonpoint source controls.

2. Sedimentation - \$70,000 (0.3 PY=\$40,000) – FY 01-02, 02-03

The Scott River watershed is 303(d) listed for sediment impacts. Assessment of sediment sources and impacts is needed to assist in developing a TMDL sedimentation reduction strategy for the watershed. Additional assessment is needed in the lower Klamath River tributaries (Terwer, Blue, High Prairie, Hunter)

3. Lake Shastina Toxics - \$42,000 (0.2 PY + \$20,000)

While cleanup activities continue on Beaughton and Boles creeks to eliminate metals, dioxins, and MtBE contamination, new sources have been identified. Additional assessment is needed to determine the extent of the problem in the tributaries and Lake Shastina.

4. Chemicals in POTWs - \$21,000 (0.1 PY + \$10,000) – FY 00-01

Petroleum products, including solvents, MTBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs.

5. Pesticides in Tulelake Area - \$115,000 (0.5 PY + \$60,000) – FY 00-01

The US Geological Survey assessed pesticides in the basin some years ago. Additional assessment keyed to current agricultural chemical use should be performed.

6. Yreka Creek Petroleum - \$42,000 (0.2 PY + \$20,000) – FY 00-01

While groundwater contamination from solvents and other petroleum products are documented and being addressed to varying degrees, contamination of Yreka Creek from contiguous groundwaters is a concern. To date no significant problems have been identified, however it remains a concern.

SECTION 2.3

FORESTED NORTH COAST RIVERS

North Coast rivers not specifically included in other WMAs are included in this grouping. The major watersheds from the Oregon border south include the following listing. Those in bold have information in this section:

Section 2.3.1	Smith River
Section 2.3.2	Bear River
Section 2.3.3	Mattole River
Section 2.3.4	Ten Mile River
Section 2.3.5	Noyo River
Section 2.3.6	Big River
Section 2.3.7	Albion River
Section 2.3.8	Navarro River
Section 2.3.9	Greenwood, Elk, and Alder creeks
Section 2.3.11	Garcia River
Section 2.3.12	Gualala River

A citizens lawsuit against US Environmental Protection Agency produced a consent decree scheduling a number of north coast rivers for development of Clean Water Act Section 303(d) "TMDLs," or Total Maximum Daily Loads, primarily for sediment and temperature. The Regional Water Board has accepted responsibility for developing and implementing waste reduction strategies in compliance with the Clean Water Act in the Mattole, Noyo, Big, Navarro, Garcia, and Gualala rivers within this WMA. Of those, five are targeted for activities in fiscal years 1999-00, 2000-01 and 2000-02: Mattole, Noyo, Big, Navarro, and Gualala. Descriptions of those activities appear in this section, developed to varying degrees depending on the level of activity planned for those fiscal years.

Most streams in this WMA support anadromous fisheries including coho salmon that were listed on July 19, 1995 as threatened under the federal Endangered Species Act. The Mattole, Ten Mile, Noyo, Albion, Big, Navarro, Garcia, and Gualala rivers pursuant to Section 303(d) of the Clean Water Act, are listed as impaired by excessive sediment loading associated with historic logging, overgrazing and road building. The Mattole and Navarro are listed for high water temperatures as well.

Institutional Framework

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan.

Summary of Activities

The overall emphasis in the WMAs is the inspection of timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our timber harvest program activities on private land in concert with California Department of Forestry and Fire Protection. The future development of TMDL waste reduction strategies for sediment and temperature is another primary activity by Regional Board staff. Additional information on nonpoint source activities is detailed in Appendix D.

SECTION 2.3.5

NOYO RIVER WATERSHED

The assessment and strategy provided for the Noyo River watershed at this time is not extensive. Based on the recognition that the anadromous fishery is in decline, activities to assess the watershed and improve conditions for anadromous salmonids are underway. A Clean Water Act Section 303(d) TMDL waste reduction strategy for sediment was completed and approved by EPA in 1999. The following provides an overview of activities and outlines our basic framework and strategy at this time. Details will be added and the descriptions refined as the process proceeds.

MANAGEMENT AREA DESCRIPTION

The Noyo River watershed is a 66,000-acre coastal tributary that flows to the Pacific Ocean at the City of Fort Bragg. Redwood and Douglas fir forest on rugged, mountainous terrain dominate the watershed. The climate has moderate temperatures (annual average 53 degrees F) and an annual rainfall of 39 inches. The primary land use within the watershed is timber harvesting by three large timberland owners: Mendocino Redwoods Company (previously Louisiana Pacific Corporation), Georgia Pacific Corporation and the Jackson State Forest. The mouth of the Noyo River is dominated by a marina and associated fish processing facilities in support of the local fishing industry. Hillside vineyard development is a concern for production of sediment as land is converted to new vineyards in the future.

The Noyo River supports an anadromous fishery including coho salmon, which were listed on July 19, 1995 as threatened under the federal Endangered Species Act. The Noyo River, pursuant to Section 303(d) of the Clean Water Act, is listed as impaired by excessive sediment loading associated with historic logging, overgrazing and road building.

The City of Fort Bragg uses surface water from the Noyo River as a primary source of drinking water. The City of Fort Bragg suffered from lack of sufficient quantity of water during the drought in the 1980's and is subject to high raw water turbidities during the winter period. A new water treatment plant was constructed in 1987. The water intake system was designed to frequently backflush compressed air through the intake screens to remove silt that was plugging the screens (State Department of Health Services, personal communication, July 1995).

A more complete description of the watershed and a map will be developed from the assessments for the TMDL waste reduction strategy for sediment.

IMPLEMENTATION STRATEGY

Strategy development will occur in the form of the TMDL waste load reduction strategy for sedimentation. The TMDL is tied to resource impacts and reduction of sources to reduce impacts and bring the watershed into a desired future condition that is consistent with the enhancement and maintenance of salmonid species. A broad interagency effort was used to gather and assess existing information on the watershed. Likewise, the development of the strategy incorporated significant interagency and public coordination.

Other concerns in the watershed will continue to be addressed through existing programs. However, vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Current funding constraints will limit Regional Board staff outreach activities and enforcement activities to address this issue.

Given current funding constraints, any new and/or redirected resources should be focused on staffing for the TMDL waste reduction strategy for sediment and hillside vineyard erosion issues as they develop.

Institutional framework

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. The SWRCB and CDF/BOF entered into a Management Agency Agreement, which delegates primary water quality authority to the CDF/BOF. Regulatory activities associated with timber harvest are conducted in accordance with that agreement.

Georgia-Pacific Corp. (holdings recently acquired by an out of state investment group), Louisiana-Pacific Corp. (acquired by Mendocino Redwood Company), and the California Department of Forestry and Fire Protection (Jackson State Forest) are developing sustained yield plans (SYPs) that we hope will include watershed assessment and management components. A partial list of agencies and groups with water quality jurisdiction or interests is included in Appendix 2.3.5-A.

Summary of Activities

The overall emphasis in the WMA was the completion of the TMDL waste reduction strategy for sediment. Increased assessment activities and continued high priority forestry related activities, including any needed outreach to new vineyards, are commensurate with that charge.

Assessment and Monitoring:

Assessment of existing information was used in the development of the TMDL strategy, drawing from existing information contained in plans being developed by the CDF and private timber companies as well as any citizen information that was made available.

Monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future condition. Additional biological assessment in the surface waters near the Parlin Fork Conservation Camp may be required in association with a contamination issue.

Additional detail of monitoring needs is contained in Appendix 2.3.5-B.

Education and Outreach:

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination will be sought as part of the TMDL implementation process.

Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers with some increase in storm water issues is anticipated. Harbor issues associated with fish processing and individual waste disposal systems (primarily on the south shore of the harbor), as well as construction related problems, are addressed through the core regulatory program and the local oversight of individual systems.

Ground water:

Ground water issues center around petroleum contamination and mill sites and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites which historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used

in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in forestry, grazing, and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL implementation process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program.

Vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. The Regional Board staff will need to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water through an outreach program as conversion of land to vineyards occurs.

Timber Harvest

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game programs.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Noyo WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

Evaluation and feedback

We will evaluate progress on a yearly basis, the TMDL providing the focus.

ASSESSMENT AND PROBLEM IDENTIFICATION

The Noyo River watershed is primarily private land in timber production. Little development has occurred in the watershed in the last two decades. As mentioned above, the primary water quality concerns are related to drinking water supply and the anadromous fishery. Some of the major issues are listed below.

1. The City of Fort Bragg's Noyo River water supply is directly influenced by surface water and suffers from frequent siltation of the intakes.
2. The anadromous fishery has experienced shifts in species composition. Calif. Dept. of Forestry and Fire Protection employees, Valentine and Jameson repeated aspects of earlier fisheries work by Calif. Dept. of Fish and Game biologist, J. W. Burns, on the Little North Fork Noyo River in

1992 near the same location as Burns' initial study reaches. They found the total salmonid biomass was similar to that found by Burns but the species composition has inverted from primarily coho salmon to primarily steelhead trout. They suggest that the decline in the stream channel's average pool depth, in response to past logging practices, seems the most likely instream parameter causing the inversion in salmonid species composition in the Little North Fork Noyo River.

3. The Noyo River, pursuant to Section 303(d) of the Clean Water Act, is listed as impaired by excessive sediment loading associated with historic logging, overgrazing and road building. The harbor must be dredged on a frequent basis due to the large amounts of sediment deposited from upstream.
4. Contamination from diesel, penta- and tetrachlorophenol, and dioxins in stream sediments has been documented in the Parlin Fork and the Noyo River as a result of past activities at a wood treatment plant at the CDF camp.

WATER QUALITY GOALS AND ACTIONS

The following listing represents a first-cut delineation of goals and actions to achieve the goals that will be refined through the TMDL development and a Watershed Team.

Goal 1: Protect surface and ground water DOM, REC-1, and REC-2 uses

Point Source Issues

Current Activities

- Continue to perform waste discharger compliance inspections
- Address highest priority groundwater cleanups/remediations, e.g., Parlin Fork CDF camp
- Address highest priority underground tank cases
- Promote continuing development and application of management practices for storage, treatment and disposal of hazardous substances

Nonpoint Source Issues

Current Activities

- Maintain timber-related activities and focus on erosion controls

Additional Needs

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

Goal 2: Protect and enhance beneficial uses associated with anadromous fishes COLD

Nonpoint Source Issues

Current Activities

- Completed Section 303(d) waste reduction strategy (TMDL) to focus on assessment and watershed planning and a strategy for addressing instream and up-slope problems with respect to land use activities and to promote habitat and riparian zone restoration activities

Additional Needs

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

BUDGET

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

Appendix 2.3.5-B contains monitoring and assessment needs, and Appendix D contains details on nonpoint source program activities and needs. Section 4, Budget, contains a regional resource allocation table that details expected FY 2000-01 funding.

Appendix 2.3.5-A**Partial listing of agencies and groups with water quality jurisdiction and interests.**

United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

California State

- California Environmental Protection Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Health Services
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy

Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health

Local Agencies

- Mendocino County Resource Conservation District
- city planning departments
- city public works departments

Public Interest Groups and Industries

- Coast Action Group
- Pacific Coast Federation of Fishermen's Associations
- The previous Georgia-Pacific Corporation
- Mendocino Redwoods Company (previously Louisiana-Pacific Corporation)

Appendix 2.3.5-B**Monitoring priorities and needs detail for the Noyo WMA**

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. **TMDL Monitoring - \$65,000 - (0.5 PY + \$10,000) – FY 00-01, 03-04, 06-07, 11-12, ongoing at 5-year increments**

Instream and hillslope conditions should be monitored to gauge success and progress of implementation and to provide feedback into the implementation process.

2. **Parlin Fork Biological Assessments - \$32,000 (0.2 PY + \$10,000) – FY 00-01, 01-02, 04-05**

Documentation of conditions and monitoring of the aquatic biota should be conducted to assess the success of wood treatment chemical cleanup actions at the Parlin Fork Conservation Camp.

SECTION 2.3.8

NAVARRO WATERSHED MANAGEMENT AREA

The Navarro River in Mendocino County, California, is listed on California's 303(d) report as a water quality limited water requiring the establishment of a Total Maximum Daily Load (TMDL) due to sedimentation and temperature. The key stakeholder concern for the Navarro River is the decline of the once healthy coho salmon and steelhead trout fisheries, thought to be associated with excess sediment load and elevated water temperatures. Recently, the Anderson Valley Land Trust, Mendocino County Water Agency, and the California State Coastal Conservancy jointly prepared a Navarro Watershed Restoration Plan, focusing on restoration opportunities related to sediment and temperature and their impact on salmonid species in the watershed. A Consent Decree entered in settlement of a lawsuit against the USEPA assigned the date of December 31, 2000, for completion of TMDL allocations for the Navarro River.

MANAGEMENT AREA DESCRIPTION

The Navarro River, together with its North Fork and major tributaries Rancheria, Indian and Anderson Creeks, forms a 330 square mile coastal basin in southern Mendocino County. As recently as 1985, the Navarro was considered to have the most anadromous habitat of any coastal stream in the county. The Navarro was famous for its coho (silver) salmon runs. Today the range and abundance of coho salmon have been reduced greatly and subsequently listed as threatened on the federal ESA list. The steelhead, although faring somewhat better than salmon due to a higher tolerance for high water temperature, also have been reduced severely.

The Navarro River basin supports a significant base of agriculture, livestock and timber (and, formerly, fishery) production. Sheep and cattle graze the open grassland areas, especially in the headwaters. Anderson Valley, the most settled part of the basin, supports significant orchard and viticulture industries. Recent vineyard development of the highest ridges surrounding the Anderson Valley has led to the official designation of Sky Island appellation. The lower basin supports mixed redwood-Douglas-fir forest, which has been heavily logged. While exploitation of these resources has been in part responsible for the damage to the salmon and steelhead resource, they continue to play an important role in the local economy. The enhancement of the fishery must be planned and carried out in a way that takes account of other land uses and respects property rights in the basin.

The watershed damage and concomitant damage to the anadromous fishery of the Navarro River basin is in large measure a result of accelerated erosion and sediment production, coupled with reduced flows in late summer due to agricultural diversion.

A more detailed description and map is available in the restoration plan, *Navarro Watershed Restoration Plan* (1998).

IMPLEMENTATION STRATEGY

The current activities in the watershed aimed at implementing a watershed restoration plan form the primary focus for implementing changes to address problems in the watershed. Regional Water Board staff is actively involved in that effort and is using the information developed in the process for the TMDL strategy for sediment and temperature.

A major challenge to a restoration effort is creation of public understanding of the health of the watershed and support for implementation of specific enhancement activities. Watershed health, and the survival of the coho, is inherently a cross-ownership, community effort in which everyone's actions, upland and downstream, are interconnected. Landowners, interest groups and community leaders should be fully engaged in this process in a non-judgmental, problem solving fashion to build the groundwork for the long-term effort of resource restoration and conservation and economic stability. We will continue to foster a watershed-wide collaborative approach to dealing with watershed problems. Outreach is being conducted by

Regional Board staff to also educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff are continuing to expand outreach activities combined with needed enforcement activities to address this issue.

Institutional Framework

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. Provisions in that action plan will be the subjects of the upcoming TMDL waste reduction strategy.

The Anderson Valley Land Trust, Mendocino County Water Agency, and the California State Coastal Conservancy jointly sponsored a Navarro Watershed Restoration Plan, focusing on restoration opportunities related to sediment and temperature and their impacts on salmonid species in the watershed. The products of that effort will be included in the development of a TMDL waste reduction strategy for sediment and temperature by a Watershed Team.

Lists of agencies and other groups participating in the process will be provided in this section once the restoration plan is completed.

Summary of Activities

The overall emphasis in the WMA is developing a TMDL waste reduction strategy for sediment and temperature. Increased assessment activities and continued high priority forestry, grazing, and agricultural related activities including hillside vineyards, are commensurate with that charge.

Assessment and Monitoring:

Assessment of existing information and some ground-truthing is needed in developing the TMDL strategy. We will be drawing from existing information developed for the restoration plan. Monitoring in the long term will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future condition.

Education and Outreach:

The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health. Increased emphasis on vineyard development is planned through the Nonpoint Source Program.

Coordination:

We currently coordinate with local and State agencies on an as-needed basis. Improved coordination is sought as part of the TMDL development process, especially with the Division of Water Rights.

Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers wineries, underground tanks, etc., as well as construction related pollution.

Ground water:

Ground water issues center on petroleum contamination and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water

sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in forestry, grazing, and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self-determined “voluntary” implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Appendix D contains additional program detail.

Vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff are expanding outreach activities combined with needed enforcement activities to address this issue.

Additional Needs

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

Timber Harvest

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game programs.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Navarro WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The final evaluation once the TMDL is developed (2000) will feed into the next cycle of assessment and problem identification.

ASSESSMENT AND PROBLEM IDENTIFICATION

This section will be developed further when the TMDL is completed. In summary, the primary water quality problems are sedimentation and increased water temperatures. Probable causes include logging, road

building, vineyard conversions, landslides, and grazing. Water diversions are an issue the Division of Water Rights is addressing.

WATER QUALITY GOALS AND ACTIONS

The primary goals center around protection of the beneficial uses associated with aquatic life and drinking water supplies. The development of the TMDL waste reduction strategy for sediment and temperature is the highest priority for action in the watershed. New and redirected funding has been focused on new staff and/or contracts to assist in developing and implementing the TMDL waste reduction strategy and hillside vineyard outreach and needed enforcement activities.

BUDGET

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Additional needs are detailed in Appendix 2.3.8-B for monitoring and assessment and in Appendix D for nonpoint source program activities. The Budget section, Section 4, contains a resource allocation table depicting expected resources for FY 00-01.

Appendix 2.3.8-A

Partial listing of agencies and groups with water quality jurisdiction and interests.

This appendix is under construction.

Appendix 2.3.8-B**Monitoring priorities and needs detail for the Navarro WMA**

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. TMDL Monitoring - \$92,000 - (0.7 PY + \$15,000) – FY 01-02, 04-05, 07-08, 12-13, ongoing at 5-year increments

Instream and hillslope conditions should be monitored to gauge success and progress of implementation and to provide feedback into the implementation process.

2. Log Mill Biological Assessments - \$48,000 (0.3 PY + \$15,000) – FY 00-01, 01-02, 04-05

Documentation of conditions and monitoring of the aquatic biota should be conducted to assess the potential problems at historic wood treatment sites at old and existing log mills.

SECTION 2.3.9**GREENWOOD CREEK WATERSHED**

This section is under construction, but contains some pertinent information.

We will expand the descriptions in the future.

The Greenwood Creek watershed is located in Mendocino County in California. It was considered for the 303-(d) list for sedimentation, but was not listed. This watershed is still a priority watershed because of federal ESA listing of threatened for coho salmon.

The creek itself supports municipal supplies to the town of Elk, cold water and migratory/spawning habitat for salmonids, wildlife habitat, recreation, and agriculture.

MANAGEMENT AREA DESCRIPTION

Greenwood Creek Watershed is about 16 miles long and approximately 16,000 acres in area. It is located on the southern Mendocino Coast between the town of Elk and Philo and between Greenwood Ridge (north), Clift Ridge (south) and Signal Ridge (east). Most of the coastal watershed is privately owned, with 60% owned by Mendocino Redwood Company (formerly Louisiana-Pacific Corporation) as Timber Production Zone land, and the rest owned by approximately 50 smaller landowners. The only public land in or adjacent to Greenwood Creek is Greenwood State Beach, which contains the Greenwood Creek estuary, and a very small parcel owned by Elk County Water District. Primary land uses include timber production, viticulture, fruit orchards, residences and limited cattle ranching.

Institutional Framework

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions contained in the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan are most applicable to land uses in the watershed.

Summary Of Activities:

- “Greenwood Creek Watershed Project 1996 Road Survey Summary Report”
- “Greenwood Creek Stream Survey Data Analysis and Recommendations”.

Nonpoint Source:

Continued involvement in forestry, grazing and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat.

SECTION 2.3.11

GARCIA RIVER WATERSHED

MANAGEMENT AREA DESCRIPTION

The Garcia River watershed, located in southern Mendocino County, is a forested watershed with coastal influenced climate in the lower half of the drainage (Figure 2.3.11-1). Steelhead and coho salmon utilize the stream for spawning and rearing, however populations have plummeted in the last decade. The Garcia River is listed under Clean Water Act Section 303(d) for excessive sedimentation and subsequent anadromous salmonid habitat loss.

Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, grazing, and gravel mining. The watershed is all privately owned under multiple ownership. Hillside vineyard development is a concern for production of sediment as land is converted to new vineyards in the future.

A comprehensive watershed description is included in the *Proposed Garcia River Watershed Water Quality Attainment Strategy for Sediment* (Mangelsdorf and Lundborg 1997) and the *Assessment of Aquatic Conditions in the Garcia River Watershed* (NCRWQCB 1997) that were prepared for the development of a Clean Water Act Section 303(d) waste load allocation and sediment reduction process (TMDL).

IMPLEMENTATION STRATEGY

In response to the sedimentation and fisheries issues and concerns for the effects of land use practices in the watershed, the Mendocino County RCD obtained Coastal Conservancy funding for a watershed assessment and enhancement plan. The assessment and restoration strategy, *Garcia River Watershed Enhancement Plan*, completed in 1992, involved considerable local involvement and the creation of the Garcia Watershed Advisory Group (WAG). The Regional Water Board reformed the WAG in preparation for the development of a phased "TMDL" waste load allocation and sediment reduction process pursuant to Clean Water Act Section 303(d). The process resulted in the development of a *Garcia River Watershed Water Quality Attainment Strategy* (WQAS) which proposed specific actions to address erosion and sedimentation while recognizing the work that has already been done in the watershed. Core regulatory type functions, especially regarding ground water contamination, will continue as high priority items on a site specific basis. A TMDL and implementation plan were adopted by the Regional Water Board in December of 1998, and are being considered by the State Water Resources Control Board at this time.

Institutional Framework

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan.

Numerous other efforts have evolved in the watershed since the original watershed enhancement plan that furthered the development of the Section 303(d) WQAS:

- The Mendocino County Board of Supervisors approved a Water Agency gravel management plan funded by a Clean Water Act Section 205(j) grant;
- The Mendocino Watershed Service, a nonprofit stream rehabilitation organization, used the President's "Jobs in the Woods" funds for salmonid restoration activities;
- A court settlement following a bentonite spill into a tributary of the Garcia resulted in funds for stream rehabilitation;
- Fish and Game stream restoration funds have been used in the North Fork Garcia River to improve habitat
- The Adopt-a-watershed program is active in the area;

- Coastal Forest Lands, a timber company that owns most of the North Fork, is developing a sustained yield plan (SYP) under the Forest Practice Rules that includes watershed management components. Louisiana-Pacific Corporation is developing a SYP for their land ownership in the Garcia and made watershed assessment data available to the Regional Water Board staff to assist in the WQAS development;
- The California Department of Forestry and Fire Protection and Board of Forestry targeted the Garcia for a pilot long-term Forest Practice Rules effectiveness monitoring program and;
- The California Resources Agency targeted the Garcia watershed for a pilot data integration effort; the first phase is to develop a metadata listing for access on the World Wide Web through the California Environmental Resources Evaluation System (CERES).

The Regional Water Board would like to focus on coordinating the above activities and taking actions to reduce erosion and sedimentation to improve salmonid habitat, while satisfying federal and State requirements for Clean Water Act Section 303(d). The WQAS is completed and a formal amendment to the Basin Plan was proposed in January of 1998. Staff returned to the Board with a revised proposal in May of 1998 and another revision in December of 1998 that was adopted by the Board. The TMDL and implementation plan are under consideration by the State Water Resources Control Board at this time.

The Basin Plan amendment sets a time schedule for addressing sediment sources by type with a final attainment date of 2038. It also incorporates a change to the prohibition regarding sediment discharge in recognition of the impaired status of the Garcia River and proposes three options to obtain relief from fines under the prohibition. The proposed change replaces reference to the prohibition of discharge of sediment in “amounts deleterious” to aquatic life with prohibition of discharge of sediment from “controllable sources” and further defines controllable as human-induced and reasonably controllable.

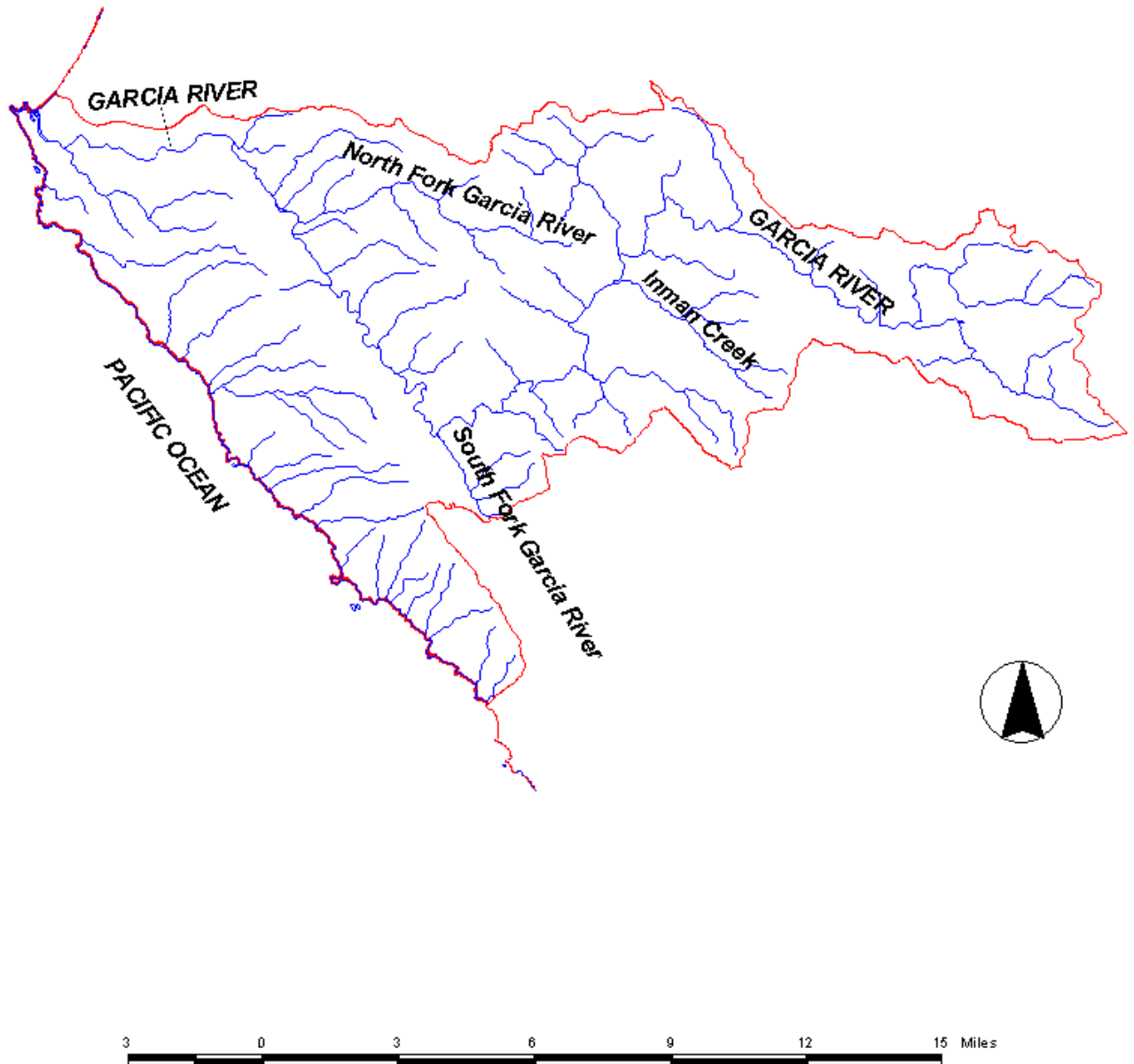
The three options available to landowners under the proposal are to:

1. avoid controllable discharges of sediment;
2. develop a Site Specific Sedimentation Reduction Plan for their ownership, taking into account watershed conditions and addressing issues on a broad watershed scale as appropriate; or
3. use the measures set forth in the Garcia Watershed Sedimentation Reduction Plan, which are conservative due to the broad application across the entire watershed.

The intent is to focus staff effort and involvement on a priority sub-watershed basis, using criteria for sediment delivery rates, fishery values, and property size in determining which sub-watersheds would be required to submit Statements of Intent detailing their intent to comply with one of the three options or a melding of them. Staff will focus resources on those priority sub-watersheds, providing assistance on the basis of priority.

In addition to the WQAS and TMDL, other activities in the watershed are of concern for water quality and will be coordinated within the Regional Water Board and at local levels as appropriate.

Figure 2.3.11-1: Garcia River Watershed



Summary of Activities

The primary emphasis in the watershed will be the implementation of the WQAS and TMDL for sedimentation reduction, including monitoring. Our core regulatory and toxics site mitigation activities will continue at their current levels.

Assessment and Monitoring:

A monitoring strategy is contained in the WQAS, but needs to be refined. We will work with the UC Extension Service in their rangeland management and monitoring training activities, and major landowners in priority sub-watersheds, as well as promote volunteer monitoring in the watershed. Monitoring for the most part will be supportive of the WQAS and assist in fine-tuning the numeric targets and implementation measures. First-round TMDL monitoring will take place in the spring of 2000. A Clean Water Act Section 319(h) grant was approved in 1999 to support local volunteer monitoring of implementation actions. Additional detail on Regional Water Board monitoring and assessment needs are presented in Appendix 2.3.11-B.

Education and Outreach:

We will continue to support education and outreach, coordinating with the UC Extension Service, Farm Bureau, and the California Department of Forestry and Fire Protection. Staff level involvement will be on a priority sub-watershed basis.

Coordination:

Coordination with the Mendocino RCD, other restoration efforts, the California departments of Fish and Game and Forestry and Fire Protection, National Marine Fisheries Service, the Garcia WAG, Farm Bureau, local interest groups and others is a necessary part of the phased WQAS. We will use the sub-watershed prioritization as the primary determining factor for staff involvement.

Core Regulatory:

We plan on maintaining the current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers, such as underground tanks, toxic contaminated sites, and sewage treatment works. Involvement in the gravel mining issues will continue under the WQAS.

Ground water:

Ground water issues center around petroleum and other toxic contamination at specific sites. We will continue cleanup activities at those sites, while working with the Mendocino County Health Department to educate users of agricultural, industrial, and residential tanks on pollution prevention.

Nonpoint Source:

The WQAS is a phased reduction plan that focuses on sedimentation as the primary nonpoint source problem in the watershed. Several activities are detailed in this summary, including assessment and monitoring, education and outreach, coordination, local contracts, and water quality planning. The WQAS lays out an approach for inventorying erosion sites and addressing sedimentation problems and constitutes a meld of the Tier 1 and Tier 2 levels of the statewide Nonpoint Source Management Plan. The Rangeland Water Quality Program is an option for part of the agricultural compliance with the WQAS.

Vineyards are rapidly expanding in the north coast region. Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. The Regional Board staff will need to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water through an outreach program as conversion of land to vineyards occurs.

Timber Harvest

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water

quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs, as well as promoting other programs such as the California Department of Fish and Game programs.

Water Quality Planning:

The planning process feeds into the activities to the extent issues are identified for the Garcia WMA:

- Adopt a water quality strategy (TMDL) and implementation plan for sedimentation reduction
- Perform Triennial Review of the Basin Plan

Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. Emerging issues of large magnitude or high priority may cause early re-evaluation and shifting priorities. The final evaluation in FY 1999-2000 will feed into the next cycle of assessment and problem identification.

ASSESSMENT AND PROBLEM IDENTIFICATION

The existing watershed enhancement plan provides an overview of the problems and identifies specific areas for implementation. The *Water Quality Attainment Strategy* (WQAS) details specific problem areas and sediment sources. The following is an overview and is not intended to duplicate the comprehensive analysis in the WQAS.

Overview of current and future land uses

Primary land uses are forestry, grazing, and gravel mining, with little change in the last two decades. The WQAS contains additional detail on land use and changes over time that are not repeated in this section.

WATER QUALITY GOALS AND ACTIONS

The Regional Water Board Garcia Watershed Team, composed of staff members familiar with our activities in the WMA, prioritized goals and actions to address issues associated with the goals. The goals and actions, and their priority rankings reflect the desire to address certain issues in a priority fashion. However, the realities of funding constraints and program related priorities may override the priorities developed by the Team. The Team developed the goals and rankings prior to the development of the WQAS.

The broad goals for the WMA include improving the anadromous fishery through sediment reductions and habitat enhancements and maintaining the other high beneficial uses of both surface and ground water. The three goals for the Garcia River are related through the beneficial uses they address:

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)**
- **GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses**
- **GOAL 3: Protect all other surface water uses**

The protection of cold water fisheries (Goal 1) requires the protection of surface water (Goal 3) and ground water (Goal 2) along with additional concerns for siltation, habitat loss, temperature and low tributary flows. Actions to protect the beneficial uses for Goal 1 (COLD) largely serve to protect all other uses, except MUN.

The NCR adopted the Garcia River Water Quality Attainment Strategy (WQAS) for sediment on December 10, 1998 in fulfillment of Section 303(d) of the CWA. The Basin Plan amendment is proceeding through the regulatory approval process with the SWRCB, OAL and EPA. Until approval is completed, the NCR is educating and encouraging landowners to implement land use practices to reduce sediment production.

GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)

The anadromous fishery has experienced severe decline in the last 40 years. Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, grazing, and gravel mining. A decrease in the depth and size of the estuary, as well as increased water temperatures in some parts of the watershed, are at issue. Additional upslope erosion controls are needed to reduce sediment delivery to waterways in the Garcia watershed. We must promote and develop considerations for the stability of stream channels and maintenance of channel form consistent with a functioning hydrologic channel. The riparian and instream habitat components must be enhanced. Instream temperatures for cold-water habitat and adequate stream flows to protect and enhance salmonid resources and COLD will be managed.

Nonpoint Source Issues**Current Activities**

- participate in the THP review team and preharvest inspections
- review and comment on SYPs and HCPs to ensure consistency with WQAS
- provide outreach and education to local landowners
- promote 319(h) grants for restoration
- review existing temperature data and collect more to fill data gaps
- list segments for temperature exceedances on CWA Section 303(d) list
- review compliance with the WQAS
- enforce on violations of the Basin Plan and/or WQAS
- stay involved in and promote the above considerations in the Section 404 permit process and CDFG 1603 process
- manage the 319(h) Garcia Restoration Project
- **supplement the WQAS by doing the following:**
 - inventory landowner and county road problems
 - promote outslipping and rolling dips for roads in the WMA
 - develop specific targets for implementation measures within the WMA
 - request Rangeland Management Plans from ranchers
 - promote specific implementation plans in the WQAS to address identified sources
 - implement upslope erosion controls
 - manage and maintain properly functioning riparian zone (may include promoting late seral stage coniferous vegetation)
 - keep channel profile, plan, and dimension appropriate for the valley type and slope
- provide outreach and education to landowners, including outreach for new hillside vineyard development projects
-
- promote a “no cut” zone with conifers as a component of the vegetation
- encourage bridges instead of culverts on fish-bearing streams
- discourage direct diversion for road watering/dust control

Additional Needs

- identify erosion and sediment sources and potential sources
- implement and monitor the Mendocino County Garcia River Gravel Management Plan
- review effectiveness of current enhancement projects
- monitor, assess, and review areas needing work and determine best option

- support and promote CDFG restoration efforts
- promote and encourage riparian canopy where needed
- promote and encourage maintenance of adequate stream flows
- enhance estuary conditions per the enhancement plan
- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards
- consider effects of off-stream water supply pits and channel stability
- provide increased outreach and education to landowners, including outreach for new hillside vineyard development projects

Goal 2: Protect and enhance ground water resources and attendant high beneficial uses

The underground storage tanks and toxics remediation programs are aimed at addressing the issues associated with this goal. While pollution/contamination issues are site specific and localized, ground water in those areas is an important resource and supports high beneficial uses. Solvents, petroleum, and metals have been detected in the ground water and surface water at the US Air Force's Point Arena Station. A number of small sites are contaminated with petroleum products.

Point Sources Issues

Current Activities

- continue cleanup activities at contaminated sites
- continue the effective individual waste systems program

Nonpoint Source Issues

Current Activities

- work with the Mendocino County Health Department to educate users of agricultural and residential storage tanks on pollution prevention

Goal 3: Protect all other surface water uses

The actions above for Goal 1 largely serve to protect all other uses, however additional issues with regard to beneficial use impairment may arise in the future. If issues do arise, we will address them through this process.

BUDGET

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Monitoring and assessment needs are detailed in Appendix 2.3.11-B, and nonpoint source activities and needs are contained in Appendix D. Section 4, Budget, contains a resource allocation table for FY 00-01.

Appendix 2.3.11-A

The following is a list of agencies and groups that are active in or have jurisdiction in the Garcia watershed. The list will be refined and short descriptions of each agency or group provided at a later date.

United States

- Environmental Protection Agency
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Department of Defense

California State

- California Environmental Protection Agency
- Resources Agency
- Department of Forestry and Fire Protection
- Board of Forestry
- Department of Fish and Game
- Department of Transportation
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy

Mendocino County

- Water Agency
- Planning Department
- Public Works Department

Local Agencies

- City of Point Arena
- Mendocino County Resource Conservation District

Public Interest Groups

- Friends of the Garcia
- Sierra Club
- Mendocino Watershed Service
- CalTrout
- Coast Action Group

Appendix 2.3.11-B**Monitoring priorities and needs detail for the Garcia watershed**

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. Updated Aerial Photos - \$37,000 (0.2 PY + \$15,000) – FY 04-05

Aerial photos will need to be obtained and interpreted to evaluate conditions in the watershed and in providing an update to the TMDL and implementation plan.

SECTION 2.3.12

GUALALA RIVER WATERSHED

The Gualala River in Sonoma and Mendocino counties, California, is listed on California's 303(d) list as a water quality limited water requiring the establishment of a Total Maximum Daily Load (TMDL) for sedimentation. The key stakeholder concern for the watershed is the decline of the once healthy salmon and steelhead trout fisheries, thought to be associated with excess sediment load and elevated water temperatures. A Consent Decree entered in settlement of a lawsuit against the USEPA assigned the date of December 31, 2001, for completion of TMDL sediment allocations for the Gualala River.

MANAGEMENT AREA DESCRIPTION

The Gualala River watershed is about 300 square miles, running in a north-south direction and flowing into the ocean at the town of Gualala (Figure 2.3.12-1). The watershed is in mountainous terrain and relatively erodable soils. The tributaries flow through steep valleys with narrow bottom lands and elevations range from sea level to over 2,650 feet. The steep slopes are forested mainly with Douglas fir and redwood interspersed with madrone and tan oak. Rainfall averages 38 inches per year at the coast and up to 100 inches per year on the inland peaks. Primary land use is forest production and grazing. . Hillside vineyard development is becoming an increasing threat to water quality as more and more steep land is converted to vineyards.

A more detailed description will be available as a result of the development of the restoration plan, which will be referenced as a resource when completed.

IMPLEMENTATION STRATEGY

The current activities in the watershed aimed at developing a watershed restoration plan form the primary focus for implementing changes to address problems in the watershed. Regional Water Board staff are actively involved in that effort and will use the information developed in the process for the TMDL strategy for sediment.

A major challenge to a restoration effort is creation of public understanding of the health of the watershed and support for implementation of specific enhancement activities. Watershed health, and the survival of the salmonids, is inherently a cross-ownership, community effort in which everyone's actions, upland and downstream, are interconnected. Landowners, interest groups and community leaders should be fully engaged in this process in a non-judgmental, problem solving fashion to build the groundwork for the long-term effort of resource restoration and conservation and economic stability. A Gualala River Watershed Council has formed and is beginning to address issues in the watershed. We will continue to foster a watershed-wide collaborative approach to dealing with watershed problems. . Outreach is being conducted by Regional Board staff to also educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial uses of water. Regional Board staff are continuing to expand outreach activities combined with needed enforcement activities to address this issue.

Institutional Framework

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. The over-arching regulatory provisions of the Basin Plan for this watershed are the Action Plan for Logging, Construction and Associated Activities and the Nonpoint Source Action Plan. Provisions in that action plan will be the subject of the upcoming TMDL waste reduction strategy.

The Gualala River Watershed Council (GRWC) is a local group of interested citizens, agencies, and businesses, focusing on overall watershed health and restoration opportunities related to sediment and temperature and their impacts on salmonid species in the watershed. An ultimate goal is to develop a

watershed enhancement plan. Information and ideas from that process will be folded into the development of a TMDL waste reduction strategy for sediment and temperature by a Watershed Team in the near future. The GRWC was successful in obtaining grants from both the California Dept. of Fish and Game and the State Water Board for restoration, erosion control, and monitoring implementation projects.

Summary of Activities

The overall Regional Water Board emphasis in the WMA is developing a TMDL waste reduction strategy for sediment and investigating water temperatures. Increased assessment activities and continued high priority forestry, grazing, hillside vineyard development, and agricultural related activities are commensurate with that charge.

Assessment and Monitoring:

Assessment of existing information and some ground-truthing is needed in developing the TMDL strategy. We will be drawing from existing information developed for the enhancement plan. Monitoring in the short term will assist in ground truthing existing information for the TMDL development and evaluating water temperature problems. An assessment of bacterial quality in two high use recreation areas may be undertaken in the future as well. In the long term, monitoring will be associated with determining the effectiveness of management practices to reduce erosion and sedimentation and determining trends towards the desired future condition. Monitoring needs are detailed in Appendix 2.3.12-A

Education and Outreach:

Public and agency participation will be enhanced by the GRWC and the TMDL process. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

Coordination:

We currently coordinate through the GRWC on a monthly basis, and with other entities as needed.

Core Regulatory:

The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers wineries, underground tanks, sewage treatment, landfills, etc.

Ground water:

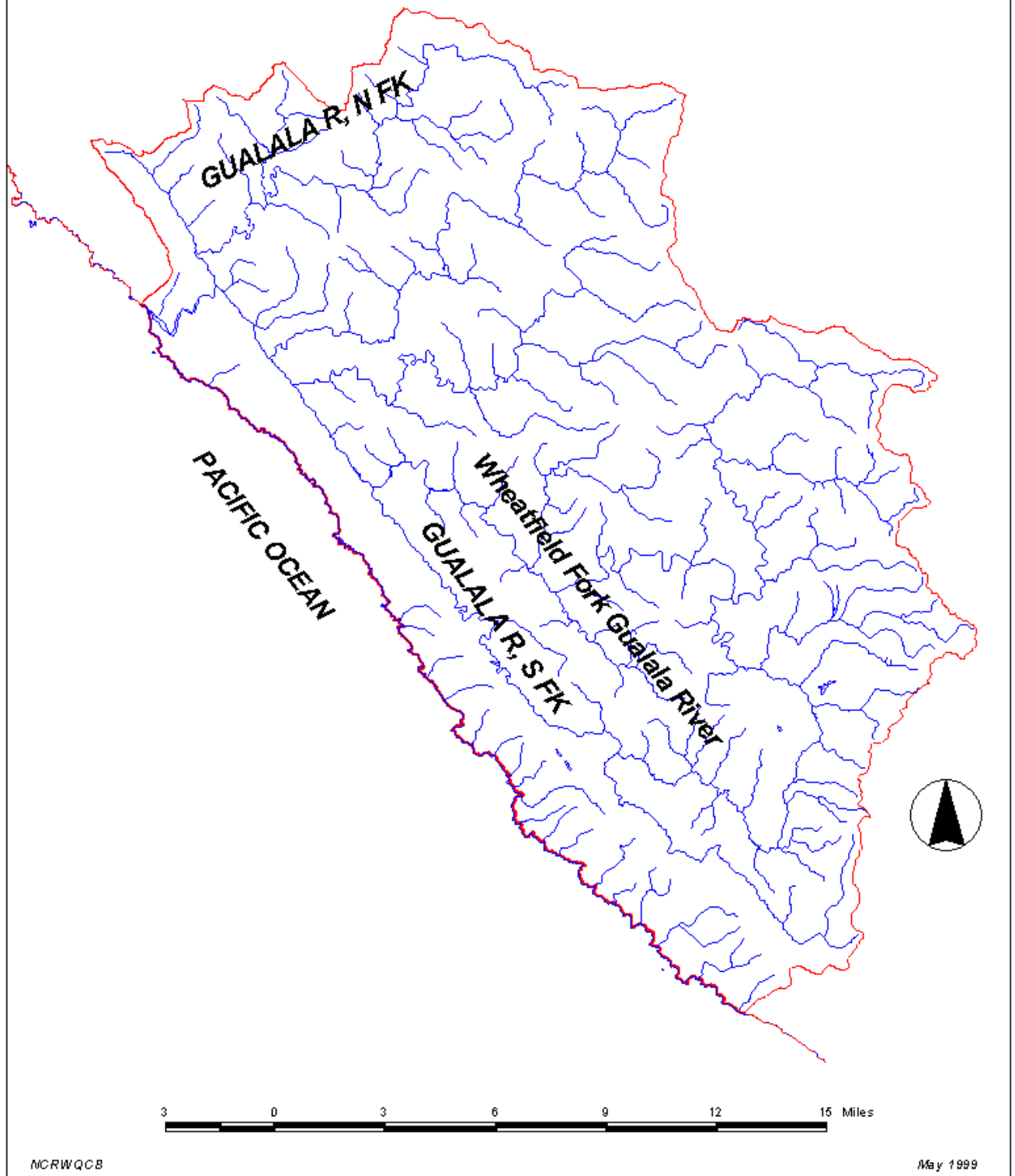
Ground water issues center around petroleum contamination and will continue to receive the current level of activity.

Nonpoint Source:

Continued involvement in forestry, grazing, , hillside vineyards and county road issues is necessary to ensure protection of aquatic resources. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self-determined “voluntary” implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program.

Vineyards are rapidly expanding in the north coast region . Much of this expansion is occurring on hillsides where there is increased erosion potential and delivery of sediment to nearby streams. Outreach is being conducted by Regional Board staff to educate vineyard landowners of best management practices for prevention of increased sedimentation of waters of the State and protection of the beneficial

Figure 2.3.12-1: Gualala River Watershed



uses of water. Regional Board staff are expanding outreach activities combined with needed enforcement activities to address this issue.

Additional Needs

- Identify erosion and sediment sources and potential sources, including sources related to new development of hillside vineyards
- Conduct outreach on best management practices for hillside vineyards

Appendix D contains additional detail regarding nonpoint source activities.

Timber Harvest

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection.

Local Contracts:

We will be administering a 319(h) contract in the watershed and will coordinate monitoring activities with those in the Garcia River watershed to facilitate learning and cross-pollination. We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game SB 271 and other programs.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Gualala WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some time in the future.

Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The final evaluation in FY 2003-04 will feed into the next cycle of assessment and problem identification.

ASSESSMENT AND PROBLEM IDENTIFICATION

This section will be further developed when the restoration plan is completed.

In summary, the primary water quality problems are sedimentation and increased water temperatures.

WATER QUALITY GOALS AND ACTIONS

The primary water quality goals center around protection of the beneficial uses associated with aquatic life and drinking water supplies. The development of the TMDL waste reduction strategy for sediment is the highest priority for action in the watershed. Any new and/or redirected funding will be focused on new staff and/or contracts to assist in developing and implementing the TMDL waste reduction strategy.

BUDGET

We will attempt to fund the highest priority actions as identified in this watershed to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Additional funding to continue to expand outreach and enforcement activities on Hillside Vineyards is needed to pursue the actions we are currently unable to address.

Monitoring and assessment needs are detailed in Appendix 2.3.12-A. Nonpoint source activities can be found in greater detail in Appendix D. Section 4, Budget, contains a resource allocation table for FY 00-01.

APPENDIX 2.3.12-A**Detail of monitoring priorities and needs for the Gualala WMA.**

The Gualala River watershed is 303(d) listed for sediment impacts, and elevated water temperature is a concern. A local watershed group, the Gualala River Watershed Council, has applied and been awarded funding for watershed assessment to assist in developing a watershed enhancement plan and supporting materials for a TMDL. Assessment of existing data and collection of additional data are needed for sediment, temperature, and bacterial concerns. Increasing vineyard development presents additional sediment, temperature, and chemical use concerns.

1. Sedimentation - \$40,000 (0.2 PY + \$20,000 contract)

Assessment of sources and the development of a sediment budget to support the TMDL is needed. Current funding may be addressing this to a major degree.

2. Water Temperature - \$12,000 (0.1 PY + \$2000 supplies)

Additional assessment of water temperatures in the watershed is needed to document areas of concern and support implementation of practices to improve water temperatures.

3. Bacterial Monitoring - \$12,500 (0.1 PY + \$2500 lab)

Concern has been expressed regarding bacterial quality for recreational uses the YMCA Camp and Redwood Campground in the Gualala watershed. Summertime monitoring would assess the situation and lead to corrective action if needed.

SECTION 2.4

HUMBOLDT WATERSHED MANAGEMENT AREA

The following draws upon information obtained through public input, agency contacts, and the personal experience of Regional Water Board staff. What is presented in this document is a summary of our knowledge regarding water quality issues and the existing and planned actions at this date in time based on current Regional Water Board staff knowledge.

MANAGEMENT AREA DESCRIPTION

This area encompasses the waterbodies that are tributary to the Pacific Ocean from Humboldt Bay north to and including Redwood Creek, and all groundwater within that area (Figure 2.4-1). Major river systems in this area are the Mad River and Redwood Creek. Other major waterbodies include Humboldt Bay and Mad River Slough, numerous coastal lagoons (Big Lagoon, Stone Lagoon, Freshwater Lagoon), and coastal streams (Elk River, Freshwater, Jacoby, and Maple creeks, Little River).

Freshwater streams in this unit support production of anadromous salmonids, including steelhead and cutthroat trout, coho and chinook salmon. The Mad River is the drinking water and industrial supply for the Humboldt Bay Area, and other coastal streams provide drinking water for local communities and individual homes. The deltas of the Elk River and Mad River Slough support commercial and sport shellfish production and harvesting.

Land use in the WMA is primarily timber production, with agricultural uses in the non-forested areas consisting primarily of grazing and dairies. Lily bulb farms are found in the Arcata bottoms and the McKinleyville area. Urbanized areas include Trinidad on the ocean, McKinleyville and Blue Lake on the Mad River, and Arcata and Eureka on Humboldt Bay. Rural residential developments are scattered throughout the timber/grazing interface.

Humboldt Bay includes the typical coastal values of an estuarine embayment, as well as an extensive commercial oyster industry. It is a major shipping center for the north coast, the largest such center between San Francisco and Coos Bay, Oregon, and presents the potential for water quality problems associated with industrial uses adjacent to the bay.

IMPLEMENTATION STRATEGY

Significant strategy development and implementation for water quality protection and improvement are occurring in the Humboldt WMA at the present time by many agencies, interest groups, and individuals. We recognize that the WMA problem identification, watershed assessment, and strategy development are an on-going process, and that further input as we proceed will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. The issues identified in FY 1996-97 and resultant proposed actions are prioritized in recognition of shifting resources. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle with higher priority if appropriate. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc.

A working staff level Watershed Team within the Regional Water Board office is coordinating activities within the management area, each taking into account the level and timing of others' efforts. It is that team that has developed and prioritized the actions. This is not a new concept to the Regional Water Board, but an enhancement of what occurs to a large degree and with additional public participation. Likewise our broad interagency approach will enhance the watershed planning effort, providing the added perspective of the users of the resources, identifying issues not currently apparent to us, and refining the plan in the process.

Institutional framework

This section is not all-inclusive and will be refined through the public participation process. A matrix of each agency's abilities and jurisdictions with respect to the identified goals should be compiled to provide an overall picture for the WMA.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions of the Basin Plan are the discharge prohibitions section, which prohibits direct waste discharge to all freshwater surface waters in this management area with the exception of the Mad River and its tributaries. The State's Nonpoint Source Management Plan also is referenced in the Basin Plan and forms the basis for addressing non-timber nonpoint source pollution, such as from agricultural operations. Likewise, there are regulations within the implementation section of the Basin Plan addressing waste discharges from logging, road building, and associated construction activities. The policies regarding individual wastewater systems contained in the Basin Plan provide guidelines for local agency jurisdictions to prevent water quality degradation from septic systems.

The state *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* provides water quality guidelines for the prevention of water quality degradation and to protect the beneficial uses of bays and estuaries in the state.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Consistent with that process, a WMA workshop was held in the area on December 4, 1996, and special task forces or work groups may be formed to help identify water quality issues and strategies. With respect to other agencies and groups in the management area, a list is offered for informational purposes in Appendix 2.4-A. It is our intent to continue to coordinate with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized.

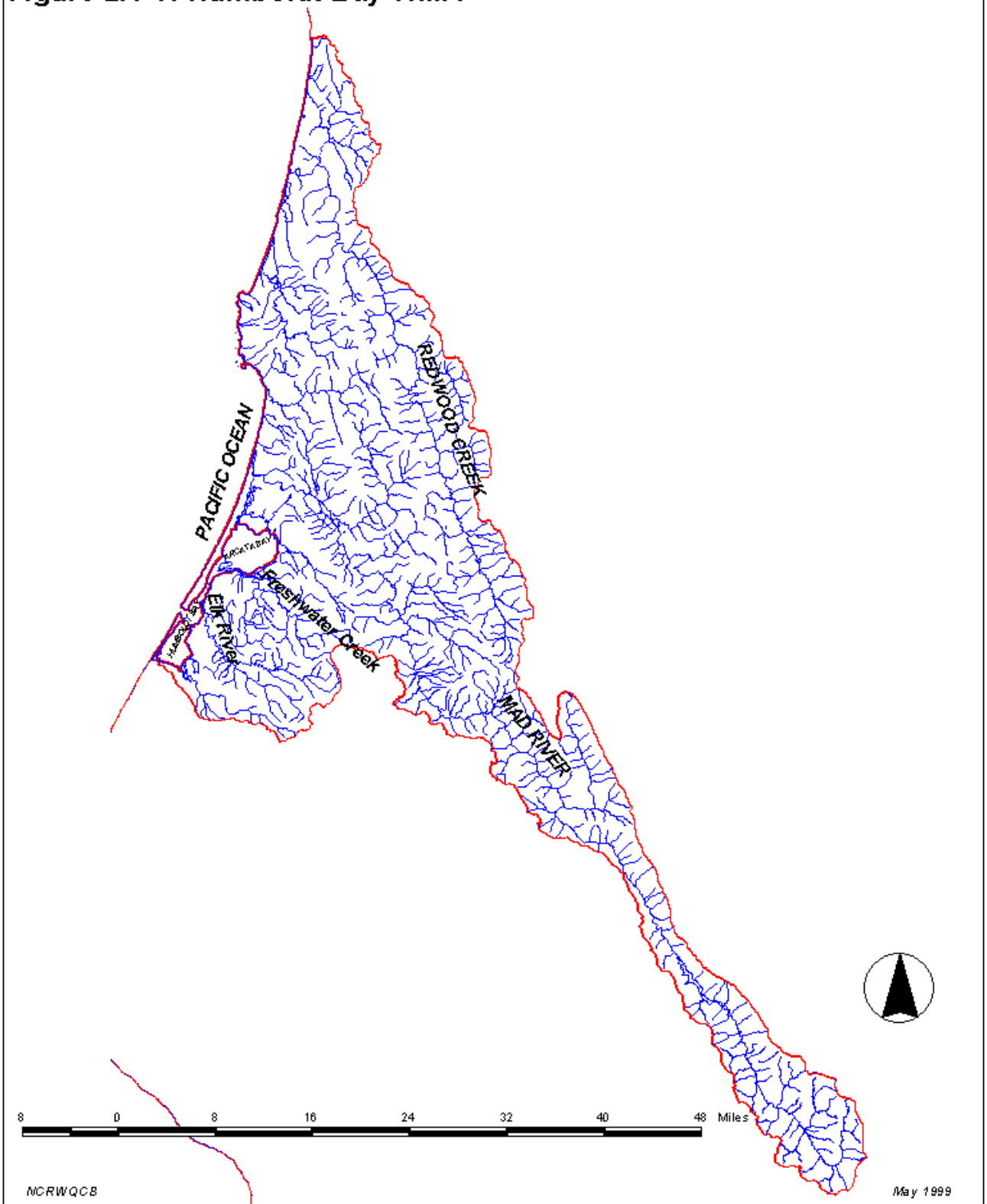
Summary of Activities

The general emphasis in the WMA is to increase coordination and education/outreach, especially regarding erosion control and sedimentation and the handling of toxic materials. Increased assessment activities, including monitoring coordination, maintaining a watchful eye on traditional point source dischargers and continued high priority forestry related activities are also part of the strategy.

Assessment and Monitoring:

Additional assessment needs were identified for storm water issues, both urban and otherwise. The uses of Humboldt Bay are threatened by runoff contaminants, and the freshwater streams are subject to sedimentation by storm water runoff from eroding areas. There is concern that ground water data are not sufficient to describe the condition of ground water in the WMA, and a system to gather and analyze existing information has been suggested.

Local monitoring workshops have been conducted to improve coordination, standardize protocols, develop an information bank, and foster a volunteer monitoring program. The need to monitor both the implementation and effectiveness of watershed enhancement efforts should be addressed. Long-term monitoring programs are present to some degree, but would benefit from additional coordination. For instance, the bacterial data collected on Humboldt Bay for determining oyster harvest conditions may benefit from a broader data analysis. Continuing to promote the use of State funds for the State Mussel Watch Program and Toxic Substances Monitoring Program is a high priority, so that we maintain a watch

Figure 2.4-1: Humboldt Bay WMA

on toxic chemical accumulation in food and fauna, and the ability to detect hot spots. The State Mussel Watch Program, a sentinel monitoring program for toxic chemicals, has provided valuable information on occurrence of toxic chemicals that has guided cleanups around the bay. Current activities relating to water quality in the Eureka Waterfront area are guided by information from that program, the Bay Protection and Toxic Cleanup Program, and ground water monitoring and assessment activities.

More detail on monitoring priorities and needs are presented in Appendix 2.4-B.

Education and Outreach:

Pollution prevention activities were highlighted by the Watershed Team as a high priority activity. Increased education and outreach should be addressed for erosion control, other storm water issues, confined animal facilities, management and disposal of toxics, monitoring and assessment, and the core regulatory program. Concern was raised at the public workshop that the public doesn't have a good idea of the level of compliance of various point source dischargers, and that the Regional Water Board staff should present the compliance histories at a public workshop.

Coordination:

Tied in closely with education and outreach is the need for enhanced coordination. We currently participate in a number of activities beyond our day-to-day work that are aimed at improving communication and coordination to the benefit of improved water quality. Included in those actions are participation in the Humboldt Bay Shellfish Advisory Group and the CalTrans Vegetation Management Advisory Committee, administration of a Clean Water Act 319(h) grant with the Redwood Community Action Agency, close coordination with the local environmental health department, and a group of local agencies and landowners coordinating cleanup activities on the Eureka Waterfront.

Core Regulatory:

The Watershed Team proposes maintaining the current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers, while increasing the level of involvement in storm water issues. Included in core regulatory are the underground storage tanks program and addressing the Eureka Waterfront issues. Involvement in the gravel mining issues in the WMA should continue, especially as regards stream channel geomorphology and potential effects on the anadromous salmonid resources.

Ground water:

Groundwater issues center around petroleum contamination and the Eureka Waterfront problems, however the Watershed Team proposes that increased coordination, such as follow-up on illegal disposal cases, be increased. Additional assessment is desired as well.

Nonpoint Source:

Continued involvement in the forestry issues is necessary to ensure protection of aquatic resources. The recent listing of chinook salmon in Redwood Creek and coho salmon in the Humboldt WMA as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The Team suggests increasing work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing self-determined "voluntary" implementation of controls to reduce nonpoint source pollution. An active outreach program will enhance the effectiveness of the program.

Response to Section 303(d) requirements for waste load reductions will include a Water Quality Attainment Strategy for Redwood Creek, and participation in a similar effort by USEPA for the Mad River. Assessment of the relationships of land use activities to sedimentation in those streams will be used in the development of strategies to attain water quality objectives. Elk River and Freshwater Creek were added to the Section 303(d) of impaired waterbodies and will be scheduled for similar actions in the future. Additional information is contained in Section 2.7. Issues of listing additional streams in the WMA will be addressed through the Water Quality Assessment process.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game programs.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Humboldt WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures

Additionally, the water quality attainment strategies for the Section 303(d) waterbodies will be incorporated to some degree into the Basin Plan.

Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. Emerging issues of large magnitude or high priority may cause early re-evaluation and shifting priorities. An end-of-cycle evaluation in FY 1999-2000 will feed into the next cycle of assessment and problem identification.

ASSESSMENT AND PROBLEM IDENTIFICATION

The following analysis is based on existing knowledge of issues and problems in the Humboldt WMA from long-term monitoring, discharger regulation, water quality planning and nonpoint source program efforts, and public input. However, the following analysis does not constitute a full assessment and will be refined. Accordingly, a very cursory description and analysis is presented herein.

A public workshop was conducted on December 4, 1996 in Eureka and provided much needed input on problems, issues, and concerns, as well as meaningful and useful ideas to address them. Meetings of the Watershed Team have refined the thinking on issues and how to address them. Continued public and interagency involvement will refine the approach in the future.

The hilly and mountainous areas of the WMA, while populated to varying degrees, are primarily in timber production and harvesting, with coast redwood as the predominant harvested species. Past practices and continued problems with harvesting techniques and road construction have added to stream sedimentation in all the drainages in the WMA, but to varying degrees.

Redwood Creek is largely National Park land in the lower section of the watershed and along the mainstem. However, private industrial timberland comprises a significant portion of the upper watershed and tributary areas. It appears that sedimentation has moved into the lower part of the watershed from past activities in the upper watershed. Assessments by the National Park staff documented problem areas and follow-up coordination for implementing controls is being conducted. A Section 303(d) TMDL was adopted by the USEPA in 1998. A forthcoming implementation plan should build upon the existing efforts to coordinate activities in the watershed to benefit enhancement of the salmonid resources.

The Mad River watershed is mixed private and Forest Service timberland with a long history of timber harvest. Adding to the mix is gravel mining in the lower portions of the watershed. The Mad River is Section 303(d) listed for sediment and temperature impacts. The primary issues for the watershed are forestry-related, with urbanization and associated industrial and public point sources. For the Mad River and its tributaries, discharge of waste is allowed only under NPDES permit during the period of October 1 through May 14 and at 1% of the flow of the receiving water. The McKinleyville Community Services District discharges municipal effluent to the Mad River in compliance with those restrictions. The City of Blue Lake does not discharge directly, disposing of effluent in percolation/evaporation ponds.

Watersheds draining to the ocean south of Redwood Creek and north of Mad River face issues related to timber harvest and grazing, much like those that drain to Humboldt Bay. Humboldt Bay tributaries have experienced problems from urbanization and agricultural uses in addition to timber harvest issues. Additionally, they flow into Humboldt Bay and can impact uses there. Local concerns include sedimentation of Freshwater Creek and Elk River and subsequent flooding and domestic water supply degradation. Some industrial timberland owners are developing *Sustained Yield Plans* which will address sensitive watershed issues to some degree.

The major population area in this WMA is the Humboldt Bay Area and the cities of Eureka and Arcata. Suburban growth is occurring in the unincorporated community of McKinleyville, north of Arcata. Flat land areas around the bay are predominantly pastureland with some limited cultivation, primarily lily bulb farms. Humboldt Bay is an important commercial and recreational shellfish growing area, as well as deep-water port.

Historically, wastewater discharges to the Bay impacted the shellfish uses. However, considerable emphasis on improved treatment and reliability and the consolidation and relocation of the Eureka wastewater plants has significantly reduced the problem. Discharge of treated wastewater to Humboldt Bay is permitted from the Arcata treatment plant and marsh complex in Arcata Bay (north Humboldt Bay) and the Elk River plant which serves the greater Eureka area. The Arcata plant discharges through a constructed marsh/pond complex prior to discharge to Arcata Bay. The Elk River plant times its discharges to out-going tidal flow so that effluent promptly exits the bay. The College of the Redwoods operates a small sewage treatment plant that discharges indirectly to south Humboldt Bay. Contamination from collection system overflows of raw sewage during high intensity rainfall events is still a threat to the commercial and recreational uses of the Bay.

Storm water runoff from all the watershed conveys indicators of bacterial contamination that impacts shellfish harvest. Seasonal and rainfall-based shellfish harvesting closures are in effect to mitigate the effects of nonpoint source runoff. A shellfish Technical Advisory Committee was established in November of 1995 to address nonpoint source runoff issues.

WATER QUALITY GOALS AND ACTIONS

The following goals and supporting actions are in rough order of priority and reflect the Watershed Team's synthesis of the issues and problems identified from public and agency input. The goals and attendant actions are listed in rough priority as developed by the Watershed Team. Refinement of the goals and strategy through public participation will include scheduling of the actions by fiscal year, seeking support fiscally and otherwise from local agencies and groups, and enhanced interagency and public coordination and cooperation.

The following broad goals provide a perspective from which to view the specific goals and actions presented below: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect surface and ground water uses for municipal supply, recreation, and industrial shellfish harvest, and 3) protect and enhance the anadromous salmonid resources.

The five goals for the Humboldt WMA are related through the beneficial uses they address:

- **GOAL 1: Protect surface water uses MUN, REC-1, REC-2, NAV, WILD, EST, MAR, MIGR, SPWN, SHELL**
- **GOAL 2: Protect ground water uses MUN, IND, AGR, REC-1, REC-2**
- **GOAL 3: Further and continued assessment and monitoring**
- **GOAL 4: Protect/enhance cold water fisheries**
- **GOAL 5: Protection of the commercial and recreational shellfish uses**

Protection of surface water (Goal 1) for the primary beneficial uses MUN, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected then it follows that agricultural and industrial supplies are also protected which relates Goal 1 to Goal 2 (ground water protection). The protection of cold water fisheries (Goal 4) requires the protection of surface and ground waters (Goals 1 and 2) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. The protection of commercial and recreational shellfish uses (Goal 5) requires high quality water free from bacterial contamination to ensure a safe product and therefore is also related to Goals 1 and 2. Further and continued assessment and monitoring (Goal 3) is necessary to determine whether the other goals are being achieved and whether more action is needed to achieve the goals. Therefore, by protecting the beneficial uses that demand the highest quality waters most components supporting the other beneficial uses also will be protected.

GOAL 1: Protect surface water uses MUN, REC-1, REC-2, NAV, WILD, EST, MAR, MIGR, SPWN, SHELL

Numerous activities occur within the watershed that may result in adverse effects to the beneficial uses of surface waters in the Humboldt Bay Watershed. Beneficial uses identified for this watershed include, municipal and domestic water supply, recreation, navigation, wildlife, estuarine, and marine habitat, as well as providing for migration and spawning of aquatic organisms, and support of shell fish harvesting. These uses may be impaired through discharges to surface water bodies of chemical, biological, and sedimentary materials. A few of the many activities which, if conducted improperly, are likely to impair surface water beneficial uses include: waste disposal, vehicle and railroad maintenance yard operations, herbicide application, gravel extraction, timber harvesting, dairy operations, automotive wrecking yard or metal recycling activities, wood treatment facilities, publicly owned treatment works, and construction activity. The Regional Water Board has had in-place for many years, a permitting and inspection system for sewage treatment and industrial facilities that discharge from point sources. Programs for the investigation and control of non-point discharges from municipalities and industries have recently been enacted and put into place.

Storm water runoff from logging activities, construction sites, auto wrecking yards, fleet maintenance yards, and highways is likely to contain sediment and chemical pollutants. These pollutants can have adverse effects on large and small domestic water supply systems as well as other beneficial uses that have been addressed under separate goals for the Humboldt WMA. Potential impacts from dairies, feedlots, and grazing have not been evaluated. Soil and groundwater cleanup sites along the Eureka Waterfront are a potential source of pollutant discharge to Humboldt Bay. Required cleanups along the waterfront require continuous coordination in order to facilitate redevelopment. Herbicide application on public and private lands can effect water quality. Continuous compliance with waste discharge requirements at local sewage treatment plants is needed.

Point Source Issues**Current Activities**

- Seek additional funding to conduct compliance inspections under the storm water program on a more frequent basis.
- Maintain basic regulatory programs regulating waste discharges.
- Sample for petroleum products, including solvents, MTBE, and gasoline and pesticides at POTWs.
- Impose penalties on facilities with repeated non-compliance.

Additional Needs

- Assist treatment plant operators in seeking additional funding to upgrade existing plant operations.

Nonpoint Source Issues**Current Activities**

- Review timber landowners' Sustained Yield Plans and Habitat Conservation Plans for protection of beneficial uses. Maintain an active timber harvest review program and promote enforcement actions on violations.
- Impose penalties on animal facilities with repeated non-compliance.
- Continue active participation in Vegetation Management Advisory Committee (CalTrans) and assist CalTrans in the development of a study of herbicide runoff from highway spraying operations.
- Promote watershed analysis of Humboldt Bay tributaries within the scope of the Pacific Lumber Company Habitat Conservation Plan using the Washington State Department of Natural Resources methodology.

Additional Needs

- Seek funding to improve interagency coordination to assist with identification of problem areas, conduct outreach programs and coordinate enforcement activities for erosion control.
- Encourage local agencies to adopt and enforce local ordinances for erosion control.
- Conduct community education and outreach programs to inform the public and private industries of good management practices and the potential for harmful effects if these practices are not implemented
- Perform watershed assessments, including bacterial sampling
- Follow up on MTBE detections at Ruth Lake, Mad River watershed.
- Require regular monitoring of water quality at nonpoint source facility discharge points.
- Seek additional funding for regulatory oversight of investigations and cleanups along the waterfront through cost recovery programs and brownfields grants.
- Require regular monitoring of nearby surface water bodies in association with the application of herbicides
- Seek increased funding to conduct inspections and water quality monitoring.
- Seek increased funding to develop an educational outreach program and regularly scheduled inspections, to assist cattle handlers in identifying and implementing good management practices and the California Rangeland Water Quality Management Plan.

GOAL 2: Protect Ground water uses MUN, IND, AGR, REC-1, REC-2

Activities that occur in the Humboldt Bay WMA may result in the contamination and degradation of ground water. Beneficial uses identified for ground water in this watershed include: municipal and domestic, industrial, and agricultural water supply, and recreation. These uses may be impaired through discharges to ground water from chemical and biological materials. Ground

water quality may be impacted by chemicals from various sources (point and nonpoint), such as the improper and illegal disposal of waste, spills from leaking underground storage tanks, dry cleaners, home-owners, maintenance yards (especially in the old Eureka waterfront area), small wrecking or "junk" yards including home owners who have garbage on their property, inactive mill sites, and bacteria from septic systems and confined animal operations.

Ground water information needs to be gathered and placed into a database system. A database system can help to: (1) identify the location of the problem areas of the WMA, (2) identify the location of sensitive areas of the WMA, (3) identify cleanup sites and activities associated with the WMA, and (4) identify ground water source areas.

Point Source Issues

Current Activities

- Continue coordination and cooperation and increase follow-up activities with various agencies regarding illegal disposal and discharges.
- Continue to promote the development and application of best management practices for storage, treatment, and disposal of hazardous substances.
- Continue coordination and cooperation with various local agencies to expediently investigate and remediate problem sites located along the old Eureka waterfront area.
- Continue regulatory programs of inspections, assessment and enforcement.
- Continue on-going activities associated with known ground water contamination
- Bring all facilities into compliance.

Additional Needs

- Prepare, develop, and implement a program to educate the public about point source discharges and disposals.
- Pursue additional Regional Water Board funding (PYs) for staff and laboratory services to assess and address the illegal disposals and assess ground water quality.

Nonpoint Source Issues

Current Activities

- Identify sources of existing information, including other agencies and local groups.
- Participate in local outreach programs, such as the Humboldt Bay Symposium, and share hosting duties with other agencies for watershed group and special topic meetings to provide information and to receive input from agencies and the public.
- Provide information for accessing 319(h) grant funds for the agricultural community. Ensure that the funds can be easily accessed by the agricultural community.
- Continue regulatory programs of inspections, assessment and enforcement.

Additional Needs

- Pursue additional Regional Water Board funding (PYs) to identify ground water monitoring needs in the WMA and to coordinate functions with other agencies on a watershed basis.
- Pursue additional Regional Water Board funding (PYs) to develop GIS support for the database and analysis of information.
- Prepare, develop, and implement a program to educate the public, local, city, and state agencies, along with private industry, on discharges of toxic chemicals.
- Increase coordination and cooperation with the RCDs and the agricultural community to deal with rangeland and confined animal problems, and to advance to Title 27 requirements in order to avoid ground water contamination.
- Prevent access and discharge to waste pits and ponds.

- Pursue additional Regional Water Board funding (PYs) to conduct nonpoint source inspections (and follow-up) and to investigate non-point source problems, and develop a task force to target problem areas or problem management practices.
- Pursue additional Regional Water Board funding (PYs) to prepare, develop, and implement plans for educational meetings with the public and agencies to promote use of wastes at agronomic rates, a Rangeland Management Planning process, disposal of nonpoint source wastes and to increase inter-agency coordination and cooperation.
- Continue to coordinate with the county to review septic system situations to avoid ground water contamination. This includes enforcement of the Basin Plan requirement to ensure that the county reports septage disposal practices and trends.
- Pursue additional Regional Water Board funding (PYs) for development of a database system to store, analyze, and assess existing information.

GOAL 3: Further and continued assessment and monitoring

This goal will continue to be a high priority to support the prioritization of activities and ensure that staff resources and funding are directed to those areas needing attention. It necessarily will involve considerable outreach and coordination. A limiting factors analysis should be conducted to identify obstacles to achieving water quality goals. There are specific process issues that need to be addressed to facilitate assessment and monitoring. They include: a) standardized monitoring protocols should be developed for shared data sources, b) monitoring and assessment should be coordinated, c) volunteer monitoring should be promoted, d) an information bank on the locations of watershed projects, activities, and monitoring needs to be established and maintained, and e) long-term monitoring programs, specifically the State Mussel Watch and Toxic Substance Monitoring programs, are in jeopardy due to lack of funding.

Information needs to be developed in a number of areas to assist in assessments. Additionally, specific areas need to be monitored to ensure the other goals are being met. The following listing includes those areas of concern:

- runoff from urban areas, county, state and federal roads, timberlands, construction sites and industrial sites
- gravel extraction with relation to channel morphology, wetlands, and other habitat values
- stream sedimentation with regard to aquatic habitat and flooding. The function of Redwood Creek estuary is a concern. The Mad River, Redwood Creek, Freshwater Creek, and Elk River are listed on the federal Clean Water Act Section 303(d) list for sedimentation affecting salmonid populations.
- any chemicals in wide use that were not monitored or assessed with the State Mussel Watch Program
- urban streams
- public swimming areas
- the effectiveness of restoration activities

This goal is not split out by discharger type as it is encompassing of both.

Current Activities

- Maintain discharger self-monitoring programs.
- Continue involvement with local efforts to coordinate monitoring.
- A volunteer monitoring workshop was conducted in early November 1998 by USEPA and Redwood Community Action Agency to explore opportunities for more volunteer monitoring and to enhance the existing monitoring activities by volunteers.
- The World Wide Web resources are being developed by the California Resources Agency at UC Davis should include the Humboldt WMA. They include CERES (California Environmental Resources Evaluation System), CARA (California Rivers Assessment), and WITS (Watershed Information Technology System).

Additional Needs

- A monitoring workshop should be held in the Humboldt Bay area to coordinate among private, public groups, HSU, and other agencies with the goal of standardizing monitoring to increase data exchange utility. The workshop should focus on coordinating data collection and analysis activities in the WMA, standardization of monitoring protocols, and volunteer monitoring efforts
- We should coordinate assessment and monitoring activities with local agencies and groups, initially the Redwood Community Action Agency, Humboldt Bay Shellfish TAC, Humboldt County Health Department, Humboldt County Planning Department, Humboldt County Resource Conservation District, Redwood National Park, University of California Cooperative Extension, Humboldt State University, College of the Redwoods, Salmonid Restoration Federation, California Coastal Conservancy, Humboldt Fish Action Council, California Department of Fish and Game, US Army Corps of Engineers, local timber companies, and North Coast Gravel Association. We also will coordinate with the Division of Water Rights to address water rights issues as they are identified.
- Groups wishing to do volunteer monitoring should be assisted by the staff in both time and equipment.
- Information should be gathered on a database locally prior to input to the above resources
- Seek funding for a local Database/GIS System and coordinator.
- To the extent possible the watershed planning approach will identify opportunities for redirection of staff resources into additional assessment and monitoring functions. Additionally, staff will seek out funding to support increasing assessment and monitoring activities in the WMA.
- Public education and outreach should be increased, and focus on our role in these specific areas: discharger inspections, the potential to monitor specific areas in association with the health department, placing educational handouts at local permit offices, develop a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation, and erosion control for small and rural landowners. The compliance of local discharges is generally good and should be communicated to the general public. Support and promote educational opportunities for permitting, erosion control, wetlands values, and aquatic habitat restoration, develop a matrix of agencies and responsibilities to distribute at local permit centers, and promote involvement in the California Resources Agency's World Wide Web informational and educational activities.
- Utilize Water Quality Attainment Strategies ("TMDL") for reduction of erosion and sedimentation and to improve water temperatures, to assist in the collection of information, and to provide assessments in the initial stages, and to generate additional information through monitoring into the future.
- We should investigate the possibility of looking at restoration projects from the standpoints of utility (did they work) and effectiveness (cost/benefit, ease) on a broad basis.
- Obtain dredging records to assist in the assessment of the quantity of upslope erosion and describing the linkage between numerous small upland or upslope activities and larger problems downstream in the waterways.
- Review discharger self-monitoring programs to make them more ecologically significant and include surface water monitoring as appropriate.
- Improve Water Quality Monitoring Activities with an emphasis on dairy waste. Encourage self monitoring activities with field test sampling kits for ammonia discharges.
- Seek additional funding for staff and laboratory services to inspect and monitor water quality.
-
- GOAL 4: Protect/enhance cold water fisheries
- The coldwater fishery, specifically trout, steelhead, and salmon, is of concern regarding sedimentation and other potential impacts to habitat and water quality. It is recognized that a

number of the activities already presented for protecting other uses and enhancing assessment and monitoring will also serve to further this goal, thus they are not repeated to any great degree here.

-
- The following Nonpoint Source issues and actions were identified by the public, and agencies, and relate directly to concerns about the coldwater fishery:
- Stream sedimentation from various land use activities limits coldwater aquatic uses. Stream sedimentation from rural subdivisions is an issue with regard to aquatic habitat, especially salmonids. Logging roads are a concern from the standpoints of increased runoff and delivery of sediment to local waterbodies on private and federal lands. The need was expressed to provide a clear linkage between numerous small upland or upslope activities and larger problems downstream in the waterways. The example of increased dredging needs as a symptom of increased upslope erosion was provided. The Mad River, Redwood Creek, Freshwater Creek and Elk River are listed on the federal Clean Water Act Section 303(d) list for sedimentation affecting salmonid populations. Other waterbodies in the Humboldt Bay watershed may be added to the list for excessive sediment in the near future. Strategies for reduction of erosion and sedimentation are needed.
- The function of Redwood Creek estuary is a concern, as is the overall health of the riparian corridor of the stream.
- Potential impacts from dairies and grazing need to be evaluated. Dairies should be brought up to Chapter 15 standards. Grazing issues include erosion, sedimentation, and water chemistry issues.
- Potential ground water contamination, such as nutrient loading via ground water to gaining streams, is of concern. Problem sites should receive progressive enforcement per the Nonpoint Source Management Plan.
- Pesticide applications on private and public lands is a water quality concern. Use of pesticides along roadways, in agricultural operations, in urban areas, and in lily bulb farming and forestlands in the WMA poses a threat to ground water and surface waters.

Point Source Issues

At this point in time we have no specific issues to add for point source beyond those already covered.

Nonpoint Source Issues

Current Activities

- Conduct education and outreach: The RCAA 319(h) project(s) include educational components for agriculture, timber, and rural/urban issues. We will continue involvement in that effort.
- Maintain involvement in the gravel bar mining, especially as relates to channel stability.
- Promote watershed analysis of Humboldt Bay tributaries within the scope of the Pacific Lumber Company Habitat Conservation Plan using the Washington State Department of Natural Resources methodology.

Additional needs

- Promote erosion control educational materials and programs for small and rural landowners. Placing educational handouts at local permit offices and performing more outreach were suggested, as well as developing a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation.

- Tax incentives for erosion control and aquatic restoration activities should be supported and pursued. Decreasing road density on upland slopes and decommissioning problem roads were two potential targets of such an incentive program.
- Implement and enforce Best Management Practices for Nonpoint Source Regulation - This activity includes increased inspections and work with construction, agricultural, silvicultural, and urban runoff discharges, primarily through grant-funded projects, volunteer monitoring coordination, and public education and outreach to reduce nutrient, sediment, and chemical discharges from nonpoint sources. This activity should include issues associated with land use planning regarding riparian encroachment and flood plain use and should encourage local agencies to adopt and enforce local ordinances for such control. Seek increased funding or perform redirection to become more involved in erosion/sedimentation issues in the WMA, and perform watershed assessments.
- Address Clean Water Act Section 303(d) - The Mad River, Redwood Creek, Freshwater Creek and Elk River are listed for sediment impairments to the anadromous fish resources. Other waterbodies may be listed in the future. The process to establish sediment reduction strategies will involve considerable public outreach, assessment of sources, assessment of impairments, development of quantifiable targets, consideration of feasible solutions to reduce sources, and coordinated monitoring.
- Improve Water Quality Monitoring Activities -See Goal 3.
- Improve habitat conditions for anadromous fishes by assisting and coordinating with CDFG and local agencies and groups in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation and monitoring.
- Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups to improve its functions for shading, buffering land use impacts, bank stabilization, and habitat.
- Increase time for participation in the CalTrans Vegetation Management Advisory Committee.

GOAL 5: Protection of the commercial and recreational shellfish uses

Humboldt Bay supports a significant commercial oyster industry, and is a popular area for recreational shellfishing. Both the commercial and sport shellfish resources are impacted by nonpoint source runoff from urban and rural areas and threatened by point sources. Considerable monitoring is required of the commercial shellfish industry under a conditional harvest regulation to ensure a safe product. Additional assessment and monitoring over the years has assisted in reducing bacterial pollution of the shellfish harvesting areas. Both compliance and special monitoring programs need support in the future to ensure new sources are addressed and the shellfish resource is protected. Continued coordination is needed regarding the shellfish resources. Nonpoint sources of pollution can adversely impact commercial and recreational shellfish uses. Water quality monitoring should be continued to find pollution sources and to monitor the quality of the bay regarding shellfish resources.

Point Source Issues

Current Activities

- Continue regulation of point sources to the Bay.

Additional Needs

- Review and revise existing monitoring programs currently contained in NPDES Permits for the dischargers to Humboldt Bay with specific emphasis on overflows from sewage collection systems.

Nonpoint Source Issues**Current Activities**

- The Regional Water Board by Resolution established the Humboldt Shellfish Technical Advisory Committee. Staff will continue to support and encourage the TAC to provide coordination with agencies and a forum for the development of any needed water quality investigations or monitoring.
- Continue investigations and cleanup activities at the Eureka Waterfront area to eliminate petroleum, metals, and organic chemical pollution and threats.
- Continue review of land use practices within the Humboldt Bay Watershed to ameliorate impacts from runoff sources, including, but not limited to timber harvest, pesticide use, urban, industrial and agricultural runoff, and individual waste disposal systems (septic tanks).

Additional Needs

- Bring all dairy operations into compliance with Title 27 to ensure containment of wastes and reduction of runoff generated pollution.
- Support use of the State Mussel Watch Program within the Bay. Review and expand, if appropriate, the scope of the analyses to answer the question, “Are there chemicals in wide use that have not been monitored or assessed with the State Mussel Watch Program?”
- Finalize the report on Bay Protection monitoring activities and findings.
- In cooperation with the Department of Health Services, Shellfish Program, explore pathogen issues with University of California at Davis.
- Coordinate with the Department of Health Services Shellfish Program, The Humboldt County Health Department, and the Shellfish users, when appropriate, on all monitoring activities.

BUDGET

We will attempt to fund the highest priority actions as identified in the Humboldt WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Monitoring and assessment needs are detailed in Appendix 2.4-B. The budget section, Section 4, contains a resource allocation table which details expected funding for FY 00-01.

APPENDIX 2.4 - A**Partial listing of agencies and groups in the Humboldt WMA with an interest and/or responsibility for water quality.**

United States

- Environmental Protection Agency
- Army Corps of Engineers
- Geological Survey
- National Biological Service
- National Park Service
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service
- Humboldt Bay National Wildlife Refuge

California State

- California Environmental Protection Agency
- Department of Fish and Game
- Department of Health Services
- Department of Pesticide Regulation
- Office of Environmental Health and Hazard Assessment
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- UC Cooperative Extension
- Humboldt State University
- College of the Redwoods

Humboldt County

- Planning Department
- Department of Environmental Health
- Agricultural Commissioner's Office

Local Agencies

- Humboldt County Resource Conservation District
- Shellfish Technical Advisory Committee
- Humboldt Bay Harbor District
- local water districts - numerous, to be compiled later
- city planning departments
- city public works departments

Local Industry and Public Interest Groups

- Farm Bureau
- United Dairymen
- Jacoby Creek Watershed Association
- Humboldt Fish Action Council
- American Fisheries Society
- Pacific Coast Restoration
- North Coast Gravel Association
- Trout Unlimited
- Salmon Unlimited
- California Forestry Association

Redwood Community Action Agency

timber companies - numerous, to be compiled later

Appendix 2.4-B

Monitoring priorities and needs detail for the Humboldt Watershed Management Area

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. Spatial Assessment of Contamination - \$33,000 (0.3 PY) – FY 00-01

Sediment contamination identified from the BPTCP should be combined with existing groundwater and stormwater information and spatially organized to provide an overall picture of the extent of contamination and linkages of surface and groundwater contamination, and to guide future monitoring and assessment activities in the WMA. Primary areas of concern are the Eureka Waterfront (metals, petroleum), stormwater drainages (metals, petroleum), and Arcata Bottoms (animal waste, chemicals, petroleum).

2. Sedimentation - \$376,000 (1.6 PY - 0.5 Rdwd, 0.5 Mad, 0.6 F/W & Elk + \$200,000) – FY 01-05

Redwood and Freshwater creeks and the Mad and Elk rivers are 303(d) listed for sediment impacts. While development of a TMDL by USEPA for the Mad River in the near future will support gathering and assessing existing data to some degree, additional staffing is needed. Implementation of the TMDLs for Redwood Creek and Mad River will require monitoring, as will the development of TMDLs for Freshwater Creek and Elk River.

3. Water temperature - \$26,000 (0.2 PY + \$4000 supplies) – FY 00-05

The Mad River is 303(d) listed for water temperature effects on salmonid fisheries. Collection of data will assist in development of TMDL strategies to reduce water temperatures.

4. Chemicals in POTWs - \$26,000 (0.1 PY + \$15,000) - FY 00-01

Petroleum products, including solvents, MtBE, and gasoline, as well as pesticides should be sampled in the influent and effluent of POTWs.

5. Bacterial Monitoring - \$42,000 (0.2 PY + \$20,000 lab) – FY 00-02

Concerns about bacterial quality of Humboldt Bay and other recreational waters (coastal lagoons, Mad River, Redwood Creek) with regard to enteric bacteria and parasites (*Cryptosporidium* and *Giardia*) should be addressed through a monitoring program linked to remediation. Some work was done on Elk River, tributary to Humboldt Bay, but additional sampling is needed.

6. Log Mill Biological Assessments - \$48,000 (0.3 PY + \$15,000) – FY 00-01, 01-02, 04-05

Documentation of conditions and monitoring of the aquatic biota should be conducted to assess the potential problems at historic wood treatment sites at old and existing log mills.

7. Ruth Lake MtBE - \$26,000 (0.1 PY + \$15,000) – FY 00-02

MtBE was detected in Ruth Lake on the Mad River, upstream of public and private water supplies. Additional sampling is needed to define the extent of the problem.

SECTION 2.5

EEL RIVER WATERSHED MANAGEMENT AREA

MANAGEMENT AREA DESCRIPTION

The Eel River Watershed encompasses roughly 3,684 square miles in highly erodable soils in the steep coastal mountains of the NCR, supporting a variety of water uses including municipal and agricultural supply systems, salmonid fisheries, and recreation. Surface water in many areas is intimately connected with the ground water along the nearby alluvial valleys, thereby having a profound effect on local groundwater supplies. The Eel River Watershed is also a prime recreational area boasting numerous state and private campgrounds along its length with both contact and non-contact uses such as boating and swimming. The Eel River is the third largest producer of salmon and steelhead in the State of California and supports a large recreational fishing industry. The erodable soils, steep terrain, and timber production evoke a high level of concern for the anadromous fishery resource. Coho salmon were listed as threatened under the federal Endangered Species Act in 1997, and chinook were listed as threatened in 1999.

It is heavily forested and as such, heavily utilized for timber production. Numerous activities occur within the watershed that may result in potential adverse effects to the beneficial uses of the Eel River Watershed. Municipal, agricultural, and recreational uses may be impaired through discharges to surface water bodies from chemical, biological, and sedimentary materials entering the surface water system. A few of the many activities which, if conducted improperly, are likely to impair surface water beneficial uses include: illegal waste disposal, vehicle and railroad maintenance yard operations, herbicide application, gravel extraction, timber harvesting, road building, dairy operations, automotive wrecking yard activities, wood treatment facilities, publicly owned treatment works, and failing septic systems.

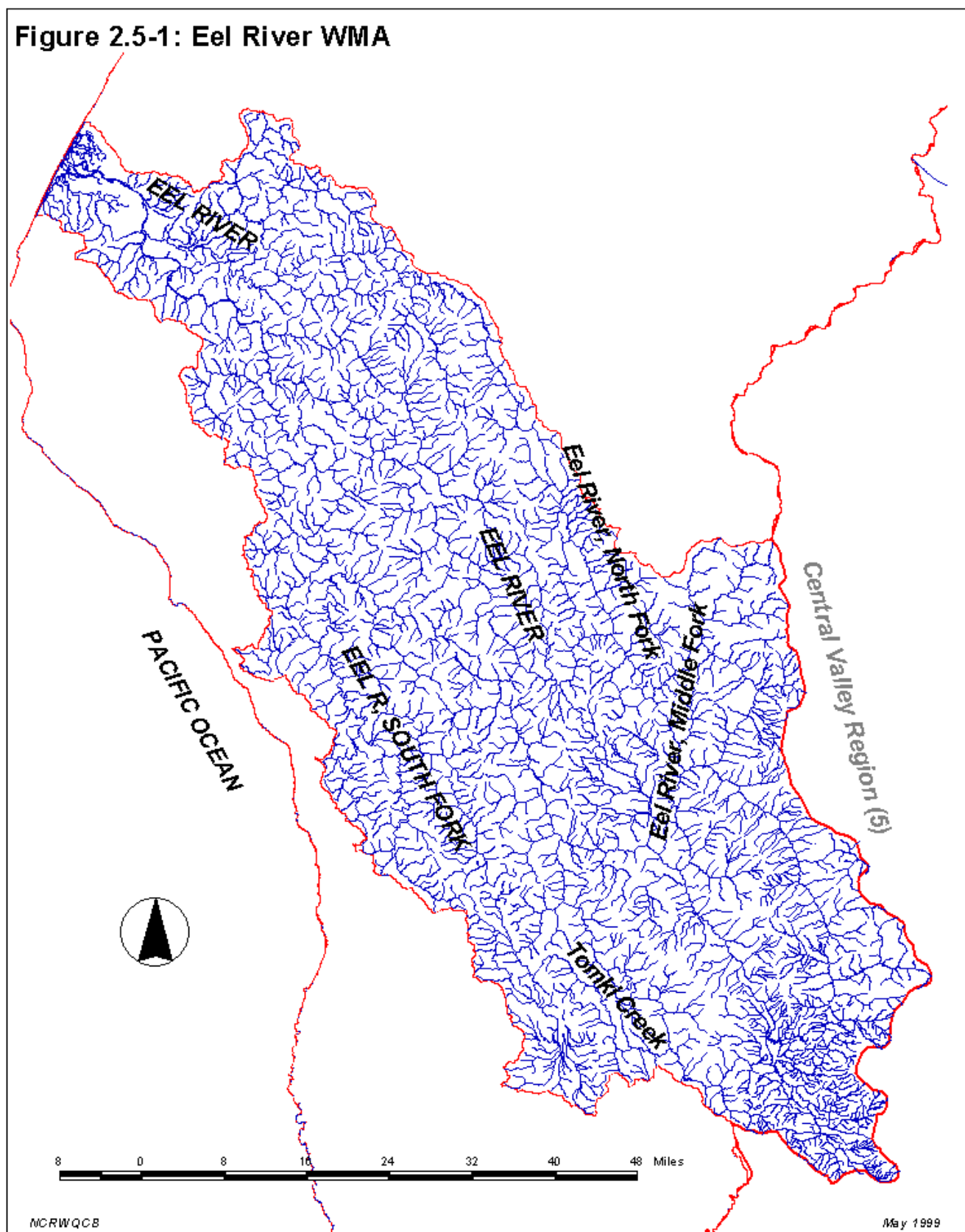
Detailed descriptions of the watershed will be provided at a later date.

IMPLEMENTATION STRATEGY

Significant strategy development and implementation for water quality protection and improvement are occurring in the Humboldt WMA at the present time by many agencies, interest groups, and individuals. We recognize that the WMA problem identification, watershed assessment, and strategy development are an on-going process, and that further input as we proceed will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. The issues identified in FY 1997-98 and resultant proposed actions are prioritized in recognition of shifting resources. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc.

A working staff level Watershed Team within the Regional Water Board office is coordinating activities within the management area, each taking into account the level and timing of others' efforts. It is that team that has developed and prioritized the actions.

This is not a new concept to the Regional Water Board, but an enhancement of what occurs to a large degree and with additional public participation. Likewise our broad interagency approach will enhance the watershed planning effort, providing the added perspective of the users of the resources, identifying issues not currently apparent to us, and refining the plan in the process.

Figure 2.5-1: Eel River WMA

Institutional framework

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined by the Eel Watershed Team and through the public participation process. A matrix of agency's abilities and jurisdictions with respect to the identified goals will be compiled to provide an overall picture for the management area.

The *Water Quality Control Plan for the North Coast Region* (Basin Plan) contains specific water quality objectives and implementation programs to protect and enhance identified beneficial uses of water. Over-arching regulatory provisions of the Basin Plan are the discharge prohibitions section, which prohibits direct waste discharge to all freshwater surface waters in this management area except during the winter and at specific dilution rates. The State's Nonpoint Source Management Plan also is referenced in the Basin Plan and forms the basis for addressing non-timber nonpoint source pollution, such as from agricultural operations. Likewise, there are regulations within the implementation section of the Basin Plan addressing waste discharges from logging, road building, and associated construction activities. The policies regarding individual wastewater systems contained in the Basin Plan provide guidelines for local agency jurisdictions to prevent water quality degradation from septic systems.

The state *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* provides water quality guidelines for the prevention of water quality degradation and to protect the beneficial uses of bays and estuaries in the state.

The California Department of Fish and Game developed an *Eel River Salmon and Steelhead Action Plan* (final draft, August 1997) that identified ten general actions to address problems in the Eel River watershed. The primary actions recommended are reducing watershed erosion and improving fish habitat and riparian areas. Additionally, the US Bureau of Land Management and US Forest Service completed watershed analyses for four sub-watersheds (South Fork, North Fork, Middle Fork and Van Duzen River) and compiled information for a preliminary assessment for the main stem Eel River. The State Department of Parks and Recreation also evaluated sediment problems in the Bull Creek watershed. We will use those sources of information in refining our actions and goals, as well as in the development of TMDL waste reduction strategies for sediment in the Eel WMA.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Consistent with that process, a WMA workshop will be held in the WMA, and special task forces or work groups may be formed to help identify water quality issues and strategies. With respect to other agencies and groups in the management area, a list is offered for informational purposes in Appendix 2.5-A. It is our intent to continue to coordinate with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized.

Summary of Activities

The general emphasis in the WMA is to increase assessment activities (including monitoring coordination) and education/outreach, especially regarding erosion control and sedimentation. While maintaining a watchful eye on traditional point source dischargers, forestry related activities are a high priority.

Assessment and Monitoring:

Additional assessment needs were identified for erosion/sedimentation and ground water issues.

Assessment of existing data is a key element in the upcoming TMDLs in the Eel and Van Duzen rivers. There is a need to organize surface and ground water data to more effectively describe conditions in the WMA and direct future monitoring activities. For instance, additional emphasis should be directed to evaluating the connection between surface and ground waters in urbanized/industrialized areas and the potential for cross-contamination. A system to gather and analyze existing information on a spatial perspective has been suggested.

A monitoring workshop has been suggested to improve coordination, standardize protocols, develop an information bank, and foster a volunteer monitoring program. We will provide some staff assistance and request additional funding to assist the Humboldt RCD in continuing a temperature monitoring and screening program in the watershed. Likewise, the need to monitor both the implementation and effectiveness of watershed enhancement efforts should be addressed, as well as bacterial quality at popular recreation sites in the South Fork Eel and Van Duzen Rivers.

Monitoring and assessment needs are detailed in Appendix 2.5-B.

Education and Outreach:

Pollution prevention activities were highlighted by the Watershed Team as a high priority activity. Increased education and outreach should be addressed for erosion control, other storm water issues, confined animal facilities, management and disposal of toxics, monitoring and assessment, and the core regulatory program.

Coordination:

Tied in closely with education and outreach is the need for enhanced coordination. We participate in a few activities beyond our day-to-day work that are aimed at improving communication and coordination to the benefit of improved water quality. Improving the interaction with other agencies and the public is a goal that will require additional funding or redirection of resources.

Core Regulatory:

The Watershed Team proposes maintaining the current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers, while increasing the level of involvement in storm water issues. Concern was raised about publicly owned treatment works discharging to infiltration ponds in the floodplain and the potential for recreational use impairment. Included in core regulatory are the underground storage tanks program and toxic site cleanups. Additional emphasis should be directed to evaluating the connection between surface and ground waters in urbanized/industrialized areas and the potential for cross-contamination. Involvement in the gravel mining issues in the WMA should continue, especially as regards stream channel geomorphology and potential effects on the anadromous salmonid resources.

Ground water:

Ground water issues center around petroleum and metals contamination and the potential for cross contamination between surface and ground water. As mentioned above, assessment of existing data is needed to provide an overall picture of contamination and to guide future monitoring efforts. Groundwater and surface water contamination is suspected at former and existing mill sites which historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem.

Nonpoint Source:

Continued involvement in the forestry issues is necessary to ensure protection of aquatic resources. The listing of coho and chinook salmon as threatened under the federal Endangered Species Act and the lawsuit against USEPA for TMDL development has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The Team suggests increasing work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Management Plan strategy of first emphasizing voluntary implementation of controls to reduce nonpoint source pollution. An active outreach program will enhance the effectiveness of the program.

Response to Section 303(d) requirements for waste load reductions will include TMDLs for the Eel and Van Duzen rivers. Assessment of the relationships of land use activities to sedimentation in those streams will be used in the development of strategies to attain water quality objectives. Additional information is contained in Section 2.7. Issues of listing additional streams in the WMA will be addressed through the Water Quality Assessment process.

Timber Harvest:

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

Local Contracts:

We will continue active involvement in the Clean Water Act Section 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game restoration programs. We are currently managing a 319(h) grant with the California Coastal Conservancy funding implementation of dairy improvements. Another 319(h) grant with the Humboldt County Resource Conservation District will be underway in April 2000 to implement landowner improvement projects that will improve water quality and salmonid habitat.

Water Quality Planning:

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Eel WMA. The top priority issues are:

- Consider revisions to the water quality objectives for dissolved oxygen and temperature
- Review the Nonpoint Source Control Measures.

Additionally, the water quality attainment strategies for the Section 303(d) waterbodies will be incorporated into the Basin Plan at some future date as resources allow.

Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. Emerging issues of large magnitude or high priority may cause early re-evaluation and shifting priorities. The final evaluation in FY 1999-2000 will feed into the next cycle of assessment and problem identification.

ASSESSMENT AND PROBLEM IDENTIFICATION

In general, the primary issues associated with water quality in the Eel River WMA are focused on the beneficial uses for drinking water supply, recreation, and the salmonid fishery. Since the watershed is located in steep forested terrain with highly erosive soils and high rainfall, erosion and sediment production and transport are high. For most of the watershed the issues of temperature and sedimentation and their impacts on the salmonid fishery are of high concern, involving the timber and rangeland industries. Other issues include ground water contamination, dairies in the delta area near the ocean, and localized contamination of surface and ground waters.

An internal Watershed Team developed listings of water quality problems, issues, and concerns, which were grouped under water quality goals. The Team used knowledge provided by other agencies to develop their listings as well as their own knowledge of the watershed. The goals and subsequent actions to address the issues were prioritized by the Team. Their effort is presented below, however due to funding constraints the priorities will not be followed in exact order. If discretionary funding is made available or redirections of existing funding occur, the highest priority actions will be addressed first.

The four goals for the Eel River WMA are related through the beneficial uses they address:

- **Goal 1: Protect and enhance the salmonid resources (COLD)**
- **Goal 2: Protect other surface water uses (MUN, AGR, REC 1, REC-2)**
- **Goal 3: Protect ground water uses (MUN, IND. AGR, REC-1, REC-2)**
- **Goal 4. Protect warmwater fishery resources**

Protection of surface water (Goal 2) for the primary beneficial uses MUN, AGR, REC-1 and REC-2 will in most cases protect all other beneficial uses. The MUN (municipal and domestic supply) beneficial use designation is for uses of water for community, or individual water supply systems including, but not limited to, drinking water supply. It demands, therefore, the highest quality of water. The REC-1 (water contact recreation) beneficial use designation is for uses of water for recreational activities involving body contact with water, where ingestion is reasonably possible. This beneficial use also demands a high degree of water quality. If MUN and REC-1 beneficial uses are protected then it follows that agricultural and industrial supplies are also protected which relates Goal 2 to Goal 3. The protection of cold and warm water fisheries (Goals 1 and 4) requires the protection of surface and ground waters (Goals 2 and 3) along with additional concerns for siltation, habitat loss, low tributary flows and water temperature. Therefore, by protecting the beneficial uses that demand the highest quality waters most components supporting the other beneficial uses also will be protected.

Goal 1: Protect and enhance the salmonid resources (COLD)

The cold water fishery, specifically trout, steelhead, and salmon, is of concern regarding sedimentation and other potential impacts to habitat and water quality. The following Nonpoint Source issues were identified by the Regional Water Board staff and relate directly to concerns about the cold water fishery:

- **Stream Sedimentation:** A large portion of the watershed supports commercial timberlands, and concern has been raised regarding the past and present impacts of timber harvest. Logging roads are a concern due to increased runoff and delivery of sediment to local waterbodies on private and federal lands. There is a need to provide a clear linkage between numerous small upland or upslope activities and larger problems downstream in the waterways. Changes in the morphology of channels have occurred from increased sedimentation rates; shallower, wider channel form increases insolation, decreases low flow velocity, increases deposition of very fine material. Sedimentation of small streams in the Eel River delta has caused localized flooding and accelerated erosion in some cases from redirected stream channels. Gravel extraction increasing in the upper Eel watershed is a concern. The regulation of gravel extraction is primarily through a US Army Corps and California Department of Fish and Game process.
- Past and current timber harvest practices have decreased the canopy cover over tributaries and the mainstem of the river. Lack of canopy cover increases the solar radiation reaching the water and increases water temperature. High water temperatures are detrimental to cold water fish reproduction.
- Potential impacts from dairies and grazing have not been fully evaluated. Concern has been raised regarding dairy industry and grazing impacts to the watershed from direct discharges of waste and/or whey, animals in the creeks and waterways, trampling of stream banks, and other erosion mechanisms. Dairies should be brought up to Title 27 standards. Grazing issues include erosion and sedimentation, and water chemistry issues.
- Ground water contamination concerns, as well as erosion and sedimentation issues should be included in outreach and education activities. Problem sites should receive progressive enforcement per the Nonpoint Source Management Plan.
- Herbicide application on private and public lands is a water quality concern.
- Interbasin transfer of water and regulated flows from dams affect sediment, flow, and temperature dynamics. These activities may contribute to the impairment of the beneficial uses.
- The seasonal erection of Benbow Dam has raised temperature and migration issues for anadromous salmonids.

Point Source Issues

Current Activities

- Continue regulation of point sources.

Nonpoint Source Issues

Current Activities

- Implement and enforce best management practices for nonpoint source regulation. These actions include inspection of nonpoint source dischargers, joint participation among landowners, government agencies, and other stakeholders to develop and implement better land-use practices, and follow road construction and maintenance standards that minimize soil disturbance and erosion throughout the watershed.
- Work more closely with the timber industry to address timber harvest impacts and issues (i.e., erosion, herbicides, riparian management). Work more closely with USFS regarding timber harvest related activities, including road building and road abandonment, in the upper Eel River Basin.
- The Eel and Van Duzen Rivers are listed under Clean Water Act Section 303(d) for sediment impairments to the anadromous fish resources. The Eel River is additionally listed for temperature impairments to the anadromous fish resources. The process to establish sediment reduction strategies will involve considerable public outreach, assessment of sources, assessment of impairments, development of quantifiable targets, consideration of feasible solutions to reduce sources, and coordinated monitoring. Work closely with EPA on TMDL development and implementation/outreach, and prepare for Basin Plan amendments.
- Investigate herbicide impacts to surface and ground water.
- Implement and enforce best management practices for nonpoint source regulation for herbicide applications, increase interagency coordination and use task force to target bad operators. Investigate herbicide impacts to surface and ground water. Work more closely with CalTrans on NPS discharges from road work.
- Promote grants for nonpoint source studies and implementation.
- Manage funded 319(h) projects.

Additional Needs

- Develop strategies for erosion prevention and reduction of sedimentation. These actions include joint participation among landowners, government agencies, and other stakeholders to develop and implement better land-use practices, and follow road construction and maintenance standards that minimize soil disturbance and erosion throughout the watershed.
- Promote erosion prevention and sediment control educational materials and programs for small and rural landowners. Place educational handouts at local permit offices and perform more outreach. Promote erosion prevention and sediment control regulations. Existing information needs to be identified so that we can assess impacts to the system and address problem areas. Compare new air photos with historical air photos and note changes in the morphology of channels. This will give us the locations of "hot spots". Meet with agencies responsible for issuance of permits to discuss their process and BMP's for water quality. Develop a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation.
- Inspect construction sites for erosion prevention and sediment control measures, encourage local agencies to adopt and enforce local ordinances for erosion prevention and sediment control measures. Increase storm water program resources.
- Fund PYs for coordinating our functions with other agencies on a watershed basis. This activity includes work with agricultural, silvicultural, and urban runoff discharges, primarily through grant-funded projects, volunteer monitoring coordination, and public education and

outreach to reduce sediment discharges from nonpoint sources. This activity could include issues associated with land use planning regarding riparian encroachment and flood plain use.

- Improve water quality assessment and monitoring activities. Identify potential grants from USEPA for watershed assessment. Identify sources of existing information, including other agencies with information. Develop funding for use of GIS. Develop a database of problems, sensitive areas, and restoration activities incorporating use of GIS. Look to EPA through TMDL process to share costs/resources. Coordinate with agencies and local groups to standardize monitoring protocols, monitor the effectiveness of restoration activities, better coordinate monitoring, promote volunteer monitoring, and develop an information bank on the locations of watershed projects, activities, and monitoring. Coordinate watershed monitoring efforts with timber industry HCP development and other agency efforts (e.g., Redwood National Park data, CDF&G data, etc.). Contact College of Redwoods and Humboldt State to see if watershed information gathering can be integrated into one of their programs. Work with CERES/CARA/WITS group for data compilation and World Wide Web access.
- Promote Tax Incentives for Erosion Controls. Tax incentives for erosion control and aquatic restoration activities should be supported and pursued. Decreasing road density on upland slopes and decommissioning problem roads were two potential targets of such an incentive program.
- Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups to improve its functions for shading, buffering land use impacts, bank stabilization, and habitat.
- Improve habitat conditions for anadromous fishes by assisting and coordinating with CDF&G and local agencies and groups in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation. Discuss instream removal of "sinker" logs with CDF&G to aid in developing better standards through 1600 series permits process. Obtain any data available on stream temperatures in this area. Provide comments to CDF&G on the Eel River Action Plan. Identify process steps involved in gravel extraction permitting. Coordinate with Army Corps and Fish & Game to identify most sensitive areas for fishery habitat. Collect information from County public works departments and CalTrans on road repairs (locations, work needed, etc.) for tracking in watershed database.
- Work on dairies through RCDs, UC Extension, dairy industry to bring up to Title 27 requirements to avoid ground water contamination. Increase coordination with RCDs and agricultural community to deal with rangeland and confined animal problems; erosion, bank erosion, animal waste in streams.
- Seal waste pits and ponds. RCD/Regional Board and other agencies to host watershed group meetings to receive input, and provide education on BMP's. Develop Regional Board approach to implementation of Rangeland Management Planning process. (Tied to coordination with RCDs). Irrigate agronomically. Nutrient budget for spreading waste (not disposal, but agronomic use). Coordinate closely with County Health and other local agencies who see the problems every day. Conduct outreach and education along the lines of the SF Bay area effort by Region 2.
- Continue active participation in the CalTrans Vegetation Management Advisory Committee and increase time commitment. Work more closely with CDF and timber industry on NPS herbicide issues.
- Coordinate water rights/dams issues with SWRCB and other agencies.
- Seek additional PYs or redirect funds to coordinate our functions with other agencies on a watershed basis and provide education outreach to public and regulated community.
- Staff should be part of the process and decision criteria regarding amounts, locations, and seasonality of gravel extractions. Is gravel extraction increasing in the upper Eel watershed?
- Coordinate with CDFG in the evaluation of the effects of Benbow Dam.

- Encourage the local planning agencies to endorse the concept of a riparian corridor reserve and develop a model erosion control ordinance for all grading and building projects less than 5 acres in size due to the sensitive nature of the watershed. Coordinate with local agencies, CalTrans, and the Railroad Authority to develop and implement best management practices for erosion control.
- Develop and implement a focused sampling program for temperature, sediment loading, geomorphology changes and water quality in upper mainstem Eel River.
- Support CDFG efforts to identify the extent of squawfish predation on salmon and steelhead populations and evaluate management strategies to eliminate squawfish predation and/or population within the river and Lake Pillsbury.

Goal 2: Protect other surface water uses (MUN, AGR, REC-1, REC-2)

Approximately 86% of the watershed area is privately owned and coordination between regulatory agencies and private groups within the watershed is poor. Communication and coordination is an over-arching, non-hierarchical issue and represents a fundamental component of all specific issues and actions identified within the watershed. The compliance rate for existing WDR/NPDES programs is high. Existing regulatory programs related to point source discharges should be continued and increased emphasis placed on identifying and inspecting traditionally low priority and unregulated point source sites. Mercury in largemouth bass from Lake Pillsbury has been measured at concentrations exceeding FDA action levels for human consumption. Discharge from Lake Pillsbury may be contributing mercury to the Eel River watershed as well. Interbasin transfer of water between the Eel River and the Russian River may affect sediment budgets, flowrates, temperature dynamics and chemical concentrations within the Eel River. Lake Pillsbury may be acting as a source for squawfish found in the upper Eel River affecting recreational uses of the River.

Point Source Issues

Current Activities

- Continue point source regulatory programs.
-
- Additional Needs
- Increase funding for identification and inspection of industrial and construction stormwater facilities and traditionally unpermitted facilities such as junk yards, steam cleaners and maintenance yards.
- Increase inspections and develop general permits for lower priority land application facilities, recycling and composting facilities.
- Encourage improvements to publicly owned treatment plants adjacent to the river to reduce incidents of upsets and eliminate disposal of wastewater to gravel bars within the river channel.
- Coordinate and assist, as needed, during upcoming FERC permit reconsideration for Scott's Dam. Negotiate flow releases and diversion schedules that enhance salmon and steelhead populations.

Nonpoint Source Issues

Current Activities

- Develop a TMDL for sediment in conjunction with EPA.
- Increase coordination with RCD and agricultural community to address rangeland issues and confined animal problems related to nutrient runoff and erosion.
- Reduce erosion associated with timber harvest and road systems.
- Continue grant programs for watershed assessment, planning, and restoration.

Additional Needs

- Fund and implement a watershed-based sampling program that is prioritized and focused on specific issues/problems within the watershed.
- Identify existing information and develop a central repository for information including database and possibly GIS capabilities.
- Increase staff priority to develop general permits for agricultural activities.
- Investigate the feasibility and impacts to beneficial uses if Eel River estuary and lower mainstem are dredged to remove well documented sediment clogging in watershed.
- Streamline 401 water quality certification program for small dischargers and encourage better use of existing BMP's for erosion.
- Endorse the concept of establishing a "river corridor". Encourage local and state agencies to evaluate appropriate land uses and industrial activities within a "river corridor". Coordinate with local planning agencies to review existing zoning and reevaluate incompatible land uses along the "river corridor".
- Increase coordination with timber companies to monitor herbicide application and pre- and post application chemical handling and disposal.
- Refer the issue of fish consumption to the Office of Health and Hazard Assessment for potential health advisory posting.
- In concert with Fish & Game, develop and implement a focused sampling plan to assess water quality, sediment and bioaccumulation potential of mercury in upper Main Stem Eel River.
- Establish and fund a watershed coordinator position to develop outreach programs that include joint participation among landowner, government agencies and other stakeholders.

Goal 3: Protect ground water uses (MUN, IND. AGR, REC-1, REC-2) Activities which occur in the Eel River Watershed may result in the contamination and degradation of ground water. Beneficial uses identified for ground water in this watershed include, municipal, industrial, and agricultural water supply, and recreation. These uses may be impaired through discharges to ground water from chemical and biological materials. A few of the many activities which, if conducted improperly, are likely to impair ground water beneficial uses include: illegal disposal sites (including illegal landfills), vehicle and railroad maintenance yard operations, herbicide application, dairy operations, automotive wrecking yards or metal recycling activities, wood treatment facilities, underground tank operations, landfill operations, and other industrial facilities operations, publicly owned treatment works, and private septic systems. In order to protect the beneficial uses of ground water in the Eel River Watershed, the following list of issues and actions has been identified by Regional Water Board staff to be addressed:

Information needs to be gathered and placed into a database system. A database system can help with the following: (1) identify the location of the problem areas of the watershed, (2) identify the location of the sensitive areas of the watershed, and (3) identify restoration areas and activities associated with the watershed.

Point Source Issues**Current Activities**

- Continue the point source regulation program.

Nonpoint Source Issues**Current Activities**

- Continue on-going activities associated with known ground water contamination.
- Prevent access to waste pits and ponds.
- Continue to coordinate with the County to review septic system situations to avoid ground water contamination. This includes enforcement of the Basin Plan requirement to ensure that the County reports septage disposal.

- Continue active participation in the Vegetation Management Advisory Committee and increase monitoring of the implementation of best management practices for herbicide applicators.
- Conduct follow-up activities.

Additional Needs

- Pursue additional Regional Water Board funding (PYs) for development of a database system (and possible GIS) to store, analyze, and assess existing information.
- Identify sources of existing information, including other agencies, and review existing documentation such as the CDFG Eel River Action Plan.
- Outreach and coordination as in other goals above.
- Pursue additional Regional Water Board funding (PYs) for staff and laboratory services to assess and address the illegal disposals and assess ground water quality.
- Prepare, develop, and implement a program to educate the public, local, city, and state Agencies, along with private industry, on discharges of toxic chemicals.
- Encourage the agricultural community to advance to Chapter 15 requirements in order to avoid ground water contamination.
- Promote agronomic irrigation and agronomic disposal of wastes by spreading.

Goal 4. Protect warmwater fishery resources

The warm water fishery exists only in Lake Pillsbury, in the upper Eel River basin. Lake Pillsbury is a favorite recreation area for residents of the North Coast. Contamination of the fisheries from naturally occurring mercury is a concern for sport fishing. Erosion of sediment above the dam exacerbates the level of mercury contaminated sediments entering the lake. Erosion of sediment from the upper portion of the basin may also be filling up Lake Pillsbury which may threaten the life of the reservoir. Existing information needs to be identified and collected so that we can assess impacts to the system and address problem areas. There is a need for a database system to help with identifying the location of the problems areas, sensitive areas, and areas for restoration activities. For the warmwater fishery, information gathering and assessment should be confined to Lake Pillsbury. Existing information needs to be identified and collected so that we can assess impacts to the system and address problem areas. There is a need for a database system to help with identifying the location of the problems areas, sensitive areas, and areas for restoration activities. For the warmwater fishery, information gathering and assessment should be confined to Lake Pillsbury. Discharges are a concern and may contribute to the impacts to the warmwater fishery of Lake Pillsbury. These include discharges due to boating activities, such as MTBE in gasoline, septic systems, industrial/construction site runoff, etc.

Point Source Issues

We know of no specific point source issues in this part of the WMA.

Nonpoint Source Issues

Current Activities

Additional Needs

- The actions for above goals regarding data gathering and assessment, coordination, and outreach all apply to this issue.
- In concert with Fish & Game, develop and implement a focused sampling plan to assess water quality, sediment and bioaccumulation potential of mercury in upper Main Stem Eel River.
- Coordinate more closely with the local watershed group, as well as the USFS, County Health and other local agencies that see the problems every day. Work with the county to ensure county controls are implemented.

BUDGET

We will attempt to fund the highest priority actions as identified in this WMA to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address. Monitoring and assessment needs are detailed in Appendix 2.5-B, and Section 4, Budget, includes a resource allocation matrix for FY 00-01.

Appendix 2.5-A

Partial listing of agencies and groups in the Eel River WMA with an interest and/or responsibility for water quality.

United States

- Environmental Protection Agency
- Army Corps of Engineers
- Forest Service
- Bureau of Land Management
- Geological Survey
- National Biological Service
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

Native American

- Round Valley Indian Reservation
- Sinkyone group?

California State

- California Environmental Protection Agency
- Resources Agency
- Department of Fish and Game
- Department of Health Services
- Department of Parks and Recreation
- Department of Pesticide Regulation
- Office of Environmental Health and Hazard Assessment
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- UC Agricultural Extension
- Humboldt State University
- College of the Redwoods

Humboldt and Mendocino County

- Water Agency
- Planning Department
- Department of Environmental Health
- Agricultural Commissioner's Office

Local Agencies

- Resource Conservation Districts
 - Mendocino County RCD
 - Humboldt County RCD
- local water districts - numerous, to be compiled later
- city planning departments
- city public works departments

Public Interest Groups

- Farm Bureau
- United Dairymen
- Cattlemen's Association

Eel/Russian Commission

Trout Unlimited

Salmon Unlimited

California Forestry Association

Appendix 2.5-B

Monitoring priorities and needs detail for the Eel River Watershed Management Area

Additional assessment by Regional Water Board staff is needed to test hypotheses about support of beneficial uses MUN, REC1, COLD, RARE, or provide assessment information essential for program implementation. They are currently unfunded.

The estimates are Regional Water Board needs on a per year basis with fiscal years identified.

1. **Water temperature - \$15,000 (0.1 PY + \$4,000 supplies) – FY 00-05 (on going for five years)**
High water temperatures affect coldwater salmonid species such as the coho and chinook salmon that are listed as threatened under the federal Endangered Species Act). The Humboldt RCD has completed a 205(j) project to provide a broad picture of water temperatures in the basin. Their continuing efforts focus on specific problem areas, but need assistance.
2. **Sedimentation - \$188,000 (0.8 PY + \$100,000) – FY 02-03, 03-04, every 5 years thereafter**
The entire Eel River watershed is Section 303(d) listed for sediment impacts. The USEPA is developing TMDL waste reduction strategies, which will support gathering and assessment of existing information. Additional monitoring for the effectiveness of the actions is needed in the phased TMDL approach.
3. **Bacterial studies - \$32,000 (0.2 PY + \$10,000 lab) – FY 00-01, 01-02**
Contact recreation may be at risk in the Van Duzen and S. Fk. Eel. Absence of data on bacterial and parasitic (*Cryptosporidium*, *Giardia*) presence is lacking.
4. **Basic Assessment - \$180,000 (1.0 PY + \$70,000 lab) – FY 00-01**
No specific body of recent (last 10 years) water quality data exists for the watershed as a whole. A check on basic water quality attendant to the focused assessments and monitoring proposed herein is needed to ensure no new problems are going unnoticed. Likewise, coordination of monitoring and assessment efforts and a compilation of existing data (a watershed atlas) is needed, but will be supported to a degree by TMDL activities. Sampling of POTWs for MtBE, other petroleum products, and metals is needed, both influent and effluent.
5. **Groundwater Data Assessment - \$33,000 (0.3 PY) – FY 00-01**
A spatial organization of existing information is needed to first assess the extent of known problems. That will guide future focused monitoring and assessments and overall assessment of groundwater in the watershed.
6. **Groundwater/Stormwater Data Collection - \$75,000 (0.5 PY + \$20,000) – FY 00-01**
Surface water and groundwater are contiguous in much of the watershed. Stormwater drainages are contributing animal waste products, gasoline, MtBE, metals (mostly Pb, Cr, Ni, Zn, Cu), solvents, and other petroleum products to the surface and ground waters to an unknown extent. We know there are problems in the Garberville and Fortuna areas, and suspect problems in the Willits, Carlotta, and Hydesville areas.

SECTION 2.6**TRINITY RIVER WATERSHED MANAGEMENT AREA**

The USEPA developed and adopted a TMDL for sediment in the South Fork Trinity River in 1998. Implementation of that TMDL is dependent on funding at the Regional Board level. At this point, there is not sufficient funding for the Regional Board to develop an implementation plan to accompany the TMDL, nor to accomplish any monitoring of activities in the watershed.

The remainder of the Trinity River watershed is scheduled for TMDL adoption by USEPA in 2001. The Regional Board would like to assist in the development of the TMDL, but is currently not funded to do so.

Staff will begin to develop the plan for the Trinity River WMA in January, 2000. We will follow the process detailed in the introduction section, and use the basic outline for the other WMAs, reproduced below.

Outline and Notes --

Management Area Description**Problem Identification and Assessment**

Overview of current and future land uses

Water Quality Problems And Issues (Staff Meeting Scheduled For Jan 31, 2000)

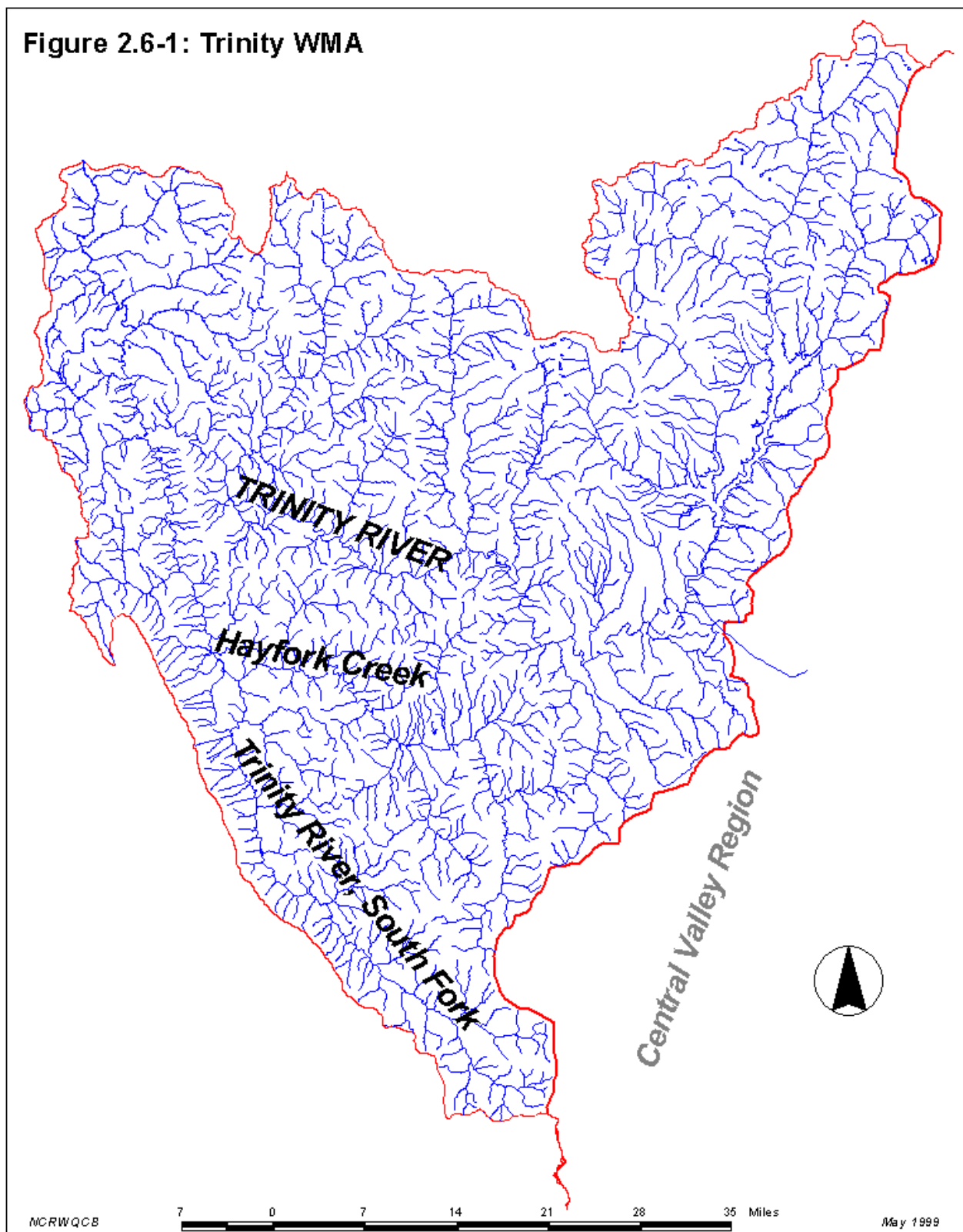
Water quality goals (staff meeting scheduled for Jan 31, 2000)

Institutional framework

Implementation Strategy

Activities to address problems and achieve goals (follow-up to Jan 31, 2000 meeting is scheduled for May 30, 2000)

Implementation**Evaluation**

Figure 2.6-1: Trinity WMA

SECTION 2.7

CLEAN WATER ACT SECTION 303(d) (TMDLs)

Section 303(d) of the Clean Water Act requires biennial listing of waterbodies not meeting water quality standards and prioritization of those waterbodies for waste reduction activities (TMDLs). The North Coast Regional Water Quality Control Board adopted its latest Section 303(d) list on April 23, 1998.

A citizen's lawsuit against US Environmental Protection Agency produced a consent decree scheduling a number of north coast rivers for development of TMDLs, primarily for sediment and temperature. The Regional Water Board has accepted responsibility for developing and implementing waste reduction strategies in compliance with the Clean Water Act in a number of WMAs. Descriptions of the planned activities appear in this section.

In some areas, organizing and activism by citizens involved in economic enterprises that depend on access to and use of natural resources, such as agriculture and forestry, gives rise to local watershed groups. Other watersheds have seen conservation and restoration efforts that are central to a citizen's watershed group. Some watersheds are held in major part by large commercial timber enterprises or the U.S. Forest Service. In these cases, direct interagency conferring with the timber interests is often the forum of first resort. Still other cases involve a combination of any or all of these elements into a dynamic community oriented resource management planning group. Considering the variety of potentials for watershed efforts, including but not limited to the examples noted above, Regional Water Board staff must be attentive to the local, adaptive nature of all these approaches. Consequently, the formation of a "watershed group" may or may not be the primary concern of the Regional Water Board staff.

The list and target adoption dates are presented in Table 2.7-1. The "comments" column in Table 2.7-1 contains references to Technical Support Documents (TSDs). TSDs contain the technical elements needed for USEPA promulgation of TMDLs where the State cannot fully adopt and approve a TMDL prior to any consent decree deadline. For consent decree TMDLs scheduled to be completed by the Regional Board, a TSD will be submitted to USEPA according to dates negotiated between these agencies, prior to Regional Water Board adoption of a TMDL and Implementation Plan.

The detail for TMDL activities from July 2000 through June 2004 appears as Table 2.7-2. This includes development of a Regional Implementation Plan for Sediment Reduction. The staff resources needed to complete activities in Table 2.7-2 are detailed in Table 2.7-3. The staff resources indicated in Table 2.7-3 are estimates. Beginning in FFY 2004-2005, additional needs will arise in addressing Klamath, Scott, and Shasta River TMDLs. The Klamath Basin is a large, complicated watershed, home to prize salmon runs that have suffered serious declines. A significant increase in staff effort will be required to address these issues.

The table indicates a Basin Plan Amendment as the endpoint of the TMDL development, but without a date. Due to partial and emerging resources, all we can commit to at this point is the development of a technical TMDL. Implementation and monitoring will come as resources allow. Additional resources, made available for Regional discretion, are directed toward development of a regionwide Basin Plan amendment for sediment, to be developed during the period from 2000 through 2002.

Table 2.7.1

Summary Schedule for TMDL Development

Russian/Bodega WMA

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Russian River (RB) *	Sediment	2011	Further assessment and implementation in the watershed are currently focussed on ESA concerns.
Americano Creek (RB)	Nutrients Sediment	2012	Implementation is proceeding prior to TMDL development
Estero Americano (RB)	Nutrients Sediment	2012	Implementation is proceeding prior to TMDL development

North Coast Rivers WMA

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Garcia River (RB)	Sediment	1998	Regional Board adopted Garcia River Water Quality Attainment Strategy (TMDL) in December 1998. State approval process is continuing at this time.
Garcia River (RB)	Temperature	Unknown	Assessment from sediment TMDL process will be used to develop a TMDL and implementation plan.
Noyo River (RB)	Sediment	1999	A Technical Support Document*was prepared by the Region and submitted to USEPA in August 1999. The TSD contains the information necessary for USEPA to prepare a technical TMDL. The technical TMDL, was promulgated by USEPA on December 12, 1999.

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Navarro River (RB)	Sediment	2000	Regional Water Board staff are developing a Technical Support Document* for submission to USEPA in the spring of 2000.
Navarro River (RB)	Temperature	2000	Regional Water Board staff are developing a Technical Support Document* for submission to USEPA in the spring of 2000.
* Until State or federal adoption/promulgation, the report prepared by the Regional Board for USEPA is called a Technical Support Document (TSD). The TSD contains the analytical, factual basis for a TMDL. TSDs are submitted to USEPA to meet court mandated deadlines. The Regional Board must still adopt and implement a TMDL.			
Gualala River (RB)	Sediment	2001	Following the progress on the nearby Garcia River watershed, Regional Board staff will continue to work with the Gualala River Watershed Council on a watershed enhancement plan and TMDL. 319(h) contract funds are targeted to road related sediment source reduction.
Mattole River (RB)	Sediment	2002	Restoration and resource management projects have been an ongoing facet of the Mattole River watershed community for several years. Monitoring funds are being targeted to assist landowners with pollutant source inventory, prioritization and mitigation outreach.

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Mattole River (RB)	Temperature	2002	Restoration and resource management projects have been an ongoing facet of the Mattole River watershed community for several years. Monitoring funds are being targeted to assist landowners with pollutant source inventory, prioritization and mitigation outreach.
Big River (RB)	Sediment	2001	USEPA and Regional Board staff, as the lead, are working jointly. The Big River will be addressed by the Regional Board in the Mendocino Coast Assessment.
Ten Mile River (EPA)	Sediment	2000	USEPA and Regional Board staff are working jointly, USEPA as the lead. The Ten Mile River will be addressed by the Regional Board in the Mendocino Coast Assessment.
Albion River (RB)	Sediment	2001	USEPA and Regional Board staff, as the lead, are working jointly. The Albion River will be addressed by the Regional Board in the Mendocino Coast Assessment.

Humboldt WMA

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Redwood Creek (RB)	Sediment	2000	In December 1998, USEPA promulgated a 'Technical TMDL' for Redwood Creek. Impairment is being aggressively treated through National Park Service restoration plan. National Park Service has developed a guidance document for resource conservation planning. Regional Board staff will continue work to develop and gain adoption of a TMDL strategy and implementation plan.
Mad River (EPA)	Sediment	2007	USEPA and Regional Board staff will work jointly, USEPA as the lead.
Mad River (EPA)	Turbidity	2007	USEPA and Regional Board staff will work jointly, USEPA as the lead.
Elk River (RB)	Sediment	2009	USEPA and Regional Board staff will work jointly, Regional Board as the lead.
Freshwater Creek (RB)	Sediment	2010	USEPA and Regional Board staff will work jointly, Regional Board as the lead.

Trinity WMA

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Trinity River (EPA)	Sediment	2001	The Trinity River Task Force, the Hoopa Tribe, U.S. Forest Service, and the U.S. Bureau of Reclamation are working to manage flows for improved sediment budget and restoration success. USEPA and Regional Board staff will work jointly, USEPA as the lead.
South Fork Trinity River (EPA)	Sediment	1998	In December 1998, USEPA promulgated a 'Technical TMDL' for S.F. Trinity River. Activities are on going in the watershed, including sediment reduction practices, fishery habitat assessments, and watershed stewardship approaches by the US Forest Service and interested public groups.

Klamath WMA

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Klamath River (RB)	Nutrients	2004	Extensive monitoring and assessment was funded in part with a Clean Water Act 104(b) grant from the USEPA. Issues relating to quality and quantity of water in the Klamath River are the subject of several discreet, sometimes inter-related public processes, including: Oregon Department of Environmental Quality (ODEQ) Klamath River TMDL; US Bureau of

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
			<p>Reclamation Klamath Project Operations Plan, and related environmental disclosures required by CEQA/NEPA; PacifiCorp (formerly Pacific Power and Light) FERC relicensing of Iron Gate dam, Copco dam and other facilities in Oregon; The Klamath River Basin Fisheries Task Force (KRBFTF) continues to work for the protection and enhancement of anadromous fish viability; Recognized Tribal entities continue efforts to adopt relevant Water Quality Control Plans; The US Forest Service continues to manage activities throughout the watershed. Related assessment and planning efforts are required to ensure full support of beneficial uses is protected and enhanced. The Scott and Shasta Rivers are tributary watersheds that are 303(d) listed. Source reduction and TMDL efforts in these watersheds may positively impact those on the Klamath River.</p>
Klamath River (RB)	Temperature	2004	(SAME AS ABOVE)
Klamath River (RB)	Dissolved Oxygen	2004	(SAME AS ABOVE)
Shasta River (RB)	Dissolved Oxygen	2005	Shasta River CRMP actively pursues source reduction efforts through 319(h) grants,

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
			the Klamath River Basin Fisheries Task Force, California Department of Fish and Game, Natural Resources Conservation Service, and other restoration programs.
Shasta River (RB)	Temperature	2005	(SAME AS ABOVE)
Scott River (RB)	Sediment	2005	The Scott River Watershed CRMP has adopted action plans to address agriculture, fall flows, and fish population and habitat. These continuing community efforts aim at identifying quantifiable targets for TMDLs. Extensive source reduction, water conservation, and restoration efforts are being done with funding help from the 319(h) program, the Klamath River Basin Fisheries Task Force, California Department of Fish and Game, Natural Resources Conservation Service, and others. An assessment of Moffett Creek, tributary to the Scott River is being done via CWA 205(j) funds.
Scott River (RB)	Temperature	2005	(SAME AS ABOVE)

Eel River WMA

Waterbody(s)	Stressor(s)	Estimated Completion	Comments
Eel River (EPA)	Sediment	1999-2006	USEPA promulgated a TMDL for South Fork Eel River in December 1999. USEPA and Regional Board staff will work jointly, USEPA as the lead. Multiple TMDLs will be developed for different reaches of the Eel River over a period of seven years.
Eel River (EPA)	Temperature	1999-2006	USEPA promulgated a TMDL for South Fork Eel River in December 1999. USEPA and Regional Board staff will work jointly, USEPA as the lead. Multiple TMDLs will be developed for different reaches of the Eel River over a period of seven years.
Tomki Creek (EPA)	Sediment	2004	USEPA and Regional Board staff will work jointly, USEPA as the lead.
Van Duzen River (EPA)	Sediment	1999	USEPA promulgated a TMDL for Van Duzen River in December 1999.

Table 2.7-2. Detailed schedule of TMDL activities (2000-05).

Redwood Creek		
Watershed name	Redwood Creek	
Hydrologic unit	107.00	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	2-97	6-00
Implementation Planning	5-98	6-00
Basin Plan Amendment	9-98	6-00
Implementation Oversight and Tracking	6-00	Ongoing

S. Fork Trinity River		
Watershed name	Trinity River	
Hydrologic unit	106.20	
Stressor	Sediment (EPA)	
Activity dates	Start	End
TMDL Development	9-97	12-98
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Van Duzen River		
Watershed name	Eel River	
Hydrologic unit	111.20	
Stressor	Sediment (EPA)	
Activity dates	Start	End
TMDL Development	9-98	12-99
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9/01	Ongoing

Noyo River		
Watershed name	Noyo River	
Hydrologic unit	113.20	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	1-99	12-99
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Garcia River		
Watershed name	Garcia River	
Hydrologic unit	113.70	
Stressor	Temperature	
Activity dates	Start	End
TMDL Development	Unknown	
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Ten Mile River		
Watershed name	Ten Mile River	
Hydrologic unit	113.13	
Stressor	Sediment (EPA)	
Activity dates	Start	End
TMDL Development	1-99	12-99
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Navarro River		
Watershed name	Navarro River	
Hydrologic unit	113.50	
Stressor	Sediment/Temperature	
Activity dates	Start	End
TMDL Development	9-99	5-00
Implementation Planning	2-97	Ongoing
Basin Plan Amendment	9-99	6-00
Implementation Oversight and Tracking	6-00	Ongoing

Gualala River		
Watershed name	Gualala River	
Hydrologic unit	113.80	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	7-00	5-01
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Big River		
Watershed name	Big River	
Hydrologic unit	113.30	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	7-00	5-01
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Albion River		
Watershed name	Albion River	
Hydrologic unit	113.40	
Stressor	Sediment (EPA)	
Activity dates	Start	End
TMDL Development	7-00	5-01
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Trinity River		
Watershed name	Trinity River	
Hydrologic unit	106.10, 106.30	
Stressor	Sediment (EPA)	
Activity dates	Start	End
TMDL Development	7-99	5-01
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Mattole River		
Watershed name	Mattole River	
Hydrologic unit	112.30	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	7-00	5-02
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Mattole River		
Watershed name	Mattole River	
Hydrologic unit	112.30	
Stressor	Temperature	
Activity dates	Start	End
TMDL Development	7-00	5-02
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Eel River		
Watershed name	Eel River	
Hydrologic unit	111.00	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	9-98	5-03
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

Eel River		
Watershed name	Eel River	
Hydrologic unit	111.00	
Stressor	Temperature	
Activity dates	Start	End
TMDL Development	9-98	5-03
Implementation Planning	Ongoing	
Basin Plan Amendment		
Implementation Oversight and Tracking		

Klamath River		
Watershed name	Klamath River	
Hydrologic unit	105.00	
Stressor	Temperature	
Activity dates	Start	End
TMDL Development	7-02	5-04
Implementation Planning	Ongoing	
Basin Plan Amendment		
Implementation Oversight and Tracking		

Klamath River		
Watershed name	Klamath River	
Hydrologic unit	105.00	
Stressor	Nutrients	
Activity dates	Start	End
TMDL Development	7-02	5-04
Implementation Planning	Ongoing	
Basin Plan Amendment		
Implementation Oversight and Tracking		

Klamath River		
Watershed name	Klamath River	
Hydrologic unit	105.00	
Stressor	Dissolved Oxygen (low)	
Activity dates	Start	End
TMDL Development	7-02	5-04
Implementation Planning	Ongoing	
Basin Plan Amendment		
Implementation Oversight and Tracking		

Region 1*		
Watershed name	Region 1	
Hydrologic unit	100	
Stressor	Sediment	
Activity dates	Start	End
TMDL Development	7-99	9-01
Implementation Planning	7-99	9-01
Basin Plan Amendment	7-99	9-01
Implementation Oversight and Tracking	9-01	Ongoing

* Development of Region-wide Implementation Plan for Sediment Reduction

TABLE 2.7-3. DETAILED TMDL TASKS SCHEDULE (NEXT THREE YEARS)

TMDL UNIT – 107.00 REDWOOD CREEK SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.3		SWRCB Approval	12/00
			OAL Review	04/01
FY 2001/02				
FY 2002/03	0.3		Revise TMDL	12/03
Implementation Planning				
FY 2000/01	0.5		Landowner Assistance/Monitoring	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
FY 2002/03	0.5		Recommended TMDL revisions	12/03
Basin Plan Amendment				
FY 2000/01	0.5		SWRCB Process	12/00
			OAL Process	04/01
FY 2001/02				
FY 2002/03				
Implementation				
FY 2000/01	0.5		Review, Monitoring, Enforcement	Ongoing
		\$50,000	Data/ Analysis	
FY 2001/02	1.0		Review, Monitoring, Enforcement	Ongoing
FY 2002/03	1.0		Review, Monitoring, Enforcement	Ongoing

USEPA adopted technical TMDL in 1998.

TMDL UNIT – _106.20 South Fork Trinity River Sediment

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Outreach	
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
FY 2001/02	0.2		Landowner Assistance/Monitoring	
FY 2002/03	0.2		Landowner Assistance/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	09/01
FY 2001/02	0.1		Region-wide Sediment Plan	09/01
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	Ongoing
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$100,000	Data/ Analysis	
FY 2002/03	1.0		Review, Monitoring, Enforcement	

USEPA completed technical TMDL in 1998.

TMDL UNIT – 111.20 VAN DUZEN RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Outreach	
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
FY 2001/02	0.2		Landowner Assistance/Monitoring	
FY 2002/03	0.2		Landowner Assistance/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	09/01
FY 2001/02	0.1		Region-wide Sediment Plan	09/01
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$30,000	Data/Analysis	
FY 2002/03	1.0		Review, Monitoring, Enforcement	

USEPA adopted technical TMDL in 1999.

TMDL UNIT – 113.20 NOYO RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Mendocino Coast Assessment/Implementation Outreach	
FY 2001/02	0.5		Mendocino Coast Assessment/Implementation Outreach & Monitoring	
FY 2002/03	0.5		Mendocino Coast Assessment/Implementation Outreach & Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	09/01
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.5		Review, Monitoring, Outreach	Ongoing
		\$25,000	Data/Analysis	
FY 2001/02	0.5		Review, Monitoring, Outreach	
		\$25,000	Data/Analysis	
FY 2002/03	1.0		Review, Monitoring, Enforcement	
		\$25,000	Data/Analysis	

USEPA adopted technical TMDL in 1999.

TMDL UNIT – 113.70 GARCIA RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Outreach, Monitoring	
FY 2001/02	0.5		Landowner Outreach, Monitoring	
FY 2002/03	0.5		Landowner Outreach, Monitoring, Revisions	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.5		Review, Monitor, Outreach	
		\$25,000	Data/Analysis	
FY 2001/02	0.5		Review, Monitor, Outreach	
		\$25,000	Data/Analysis	
FY 2002/03	1.0		Review, Revise, Enforcement	
		\$25,000	Data/Analysis	

USEPA adopted technical TMDL in 1998.

TMDL UNIT – 113.13 TEN MILE RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Coordinate with USEPA/ Outreach	
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
FY 2002/03	0.5		Landowner Assistance/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.5		Landowner Assistance/Monitoring	
		\$30,000	Data/Analysis	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$30,000	Data/Analysis	
FY 2002/03	1.0		Landowner Assistance/Monitoring	
		\$30,000	Data/Analysis	

TMDL UNIT –113.50 NAVARRO RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.5		Adoption by Regional Board	12/00
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Assistance/Monitoring	
FY 2001/02	1.0		Landowner Assistance/Monitoring	
FY 2002/03	1.0		Landowner Assistance/Monitoring	
Basin Plan Amendment				
FY 2000/01	1.0		To SWRCB by	06/01
FY 2001/02				
FY 2002/03				
Implementation				
FY 2000/01	0.5		Landowner Assistance/Outreach	
		\$50,000	Data/Analysis	
FY 2001/02	0.5		Landowner Assistance/Outreach	
		\$10,000	Data/Analysis	
FY 2002/03	0.5		Review/Revisions/Enforcement	
		\$10,000	Data/Analysis	

Technical TMDL due to USEPA in April, 2000.

TMDL UNIT – 113.50 NAVARRO RIVER TEMPERATURE

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.5		Adoption by Regional Board	12/00
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Assistance/Monitoring	
FY 2001/02	1.0		Landowner Assistance/Monitoring	
FY 2002/03	1.0		Landowner Assistance/Monitoring	
Basin Plan Amendment				
FY 2000/01	1.0		To SWRCB	06/01
FY 2001/02				
FY 2002/03				
Implementation				
FY 2000/01	0.5		Landowner Assistance/Outreach	
		\$50,000	Data/Analysis	
FY 2001/02	0.5		Landowner Assistance/Outreach	
		\$10,000	Data/Analysis	
FY 2002/03	0.5		Review/Revise/Enforcement	
		\$10,000	Data/Analysis	

Technical TMDL due to USEPA in April, 2000.

TMDL UNIT – 113.80 GUALALA RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	1.0		Develop basis for TMDL	06/01
FY 2001/02	0.5		Technical Support Document to USEPA	04/02
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Outreach/Monitoring	
FY 2001/02	0.5		Landowner Outreach/Monitoring	
FY 2002/03	0.5		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
		\$40,000	Data/Analysis	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$40,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$40,000	Data/Analysis	

TMDL UNIT – 113.30 BIG RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	1.0		Develop basis for TMDL	06/01
FY 2001/02	0.5		Technical Support Document to USEPA	04/02
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Outreach/Monitoring	
FY 2001/02	0.5		Landowner Outreach/Monitoring	
FY 2002/03	0.5		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
		\$30,000	Data/Analysis	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$30,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$30,000	Data/Analysis	

TMDL UNIT – 113.40 ALBION RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Work with USEPA staff	06/01
FY 2001/02	0.2		Support USEPA TMDL	04/02
FY 2002/03				
Implementation Planning				
FY 2000/01	0.2		Landowner Outreach/Monitoring	
FY 2001/02	0.2		Landowner Outreach/Monitoring	
FY 2002/03				
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02				
	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01				
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$20,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$20,000	Data/Analysis	

TMDL UNIT – 106.10, 106.30 TRINITY RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Assist USEPA staff	06/01
FY 2001/02	0.2		Assist USEPA staff	04/02
FY 2002/03				
Implementation Planning				
FY 2000/01	0.2		Landowner Outreach/Monitoring	
FY 2001/02	0.2		Landowner Outreach/Monitoring	
FY 2002/03				
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01				
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$60,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$60,000	Data/Analysis	

TMDL UNIT – 112.30 MATTOLE RIVER SEDIMENT

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	1.0		Develop technical basis	04/02
FY 2001/02	1.0		Develop TMDL	04/02
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Outreach/Monitoring	
		\$40,000	Inventory Support	
FY 2001/02	0.5		Landowner Outreach/Monitoring	
		\$40,000	Inventory Support	
FY 2002/03	0.5		Landowner Outreach/Monitoring	
		\$40,000	Inventory Support	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
		\$80,000	Data/Analysis	
FY 2001/02	0.2		Landowner Assistance/Monitoring	
		\$80,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$80,000	Data/Analysis	

TMDL UNIT – 112.30 MATTOLE RIVER TEMPERATURE

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	1.0		Develop technical basis	04/02
FY 2001/02	1.0		Develop TMDL	04/02
FY 2002/03				
Implementation Planning				
FY 2000/01	0.5		Landowner Outreach/Monitoring	
FY 2001/02	0.5		Landowner Outreach/Monitoring	
FY 2002/03	0.5		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
		\$20,000	Data/Analysis	
FY 2001/02	0.2		Landowner Assistance/Monitoring	
		\$20,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$20,000	Data/Analysis	

TMDL UNIT – 111.30 SOUTH FORK EEL RIVER SEDIMENT/TEMPERATURE

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02				
FY 2002/03				
Implementation Planning				
FY 2000/01	0.2		Landowner Outreach/Monitoring	
FY 2001/02	0.2		Landowner Outreach/Monitoring	
FY 2002/03	0.2		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
		\$100,000	Data/Analysis	
FY 2001/02	0.5		Landowner Assistance/Monitoring	
		\$100,000	Data/Analysis	
FY 2002/03	1.0		Monitor/Review/Enforcement	
		\$100,000	Data/Analysis	

TMDL UNIT – 111.50 EEL RIVER (NORTH FORK)
SEDIMENT/TEMPERATURE [DUE 2002]

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Assist USEPA staff	
FY 2001/02	0.2		Assist USEPA staff	
FY 2002/03	0.2		Assist USEPA staff	
Implementation Planning				
FY 2000/01	0.2		Landowner Outreach/Monitoring	
FY 2001/02	0.2		Landowner Outreach/Monitoring	
FY 2002/03	0.2		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01				
FY 2001/02	0.2		Landowner Assistance/Monitoring	
		\$40,000	Data/Analysis	
FY 2002/03	0.5		Landowner Assistance/Enforcement	
		\$40,000	Data/Analysis	

TMDL UNIT – 111.70 EEL RIVER (MIDDLE FORK)
SEDIMENT/TEMPERATURE [DUE 2003]

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02	0.2		Assist USEPA staff	
FY 2002/03	0.2		Assist USEPA staff	
Implementation Planning				
FY 2000/01				
FY 2001/02	0.2		Landowner Outreach/Monitoring	
FY 2002/03	0.2		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.5		Landowner Assistance/Monitoring/Enforcement	
		\$40,000	Data/Analysis	

TMDL UNIT – 111.6- EEL RIVER (UPPER MAIN FORK)
SEDIMENT/TEMPERATURE [DUE 2004]

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.2		Assist USEPA staff	
Implementation Planning				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.2		Landowner Outreach /Monitoring	
Basin Plan Amendment				
FY 2000/01				
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03	0.1		Region-wide Sediment Plan	
Implementation				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.2		Landowner Assistance/Monitoring/Enforcement	
		\$40,000	Data/Analysis	

TMDL UNIT – 111.40 EEL RIVER (MIDDLE MAIN FORK)
SEDIMENT/TEMPERATURE [DUE 2005]

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.2		Assist USEPA staff	
Implementation Planning				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.2		Landowner Outreach/Monitoring	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01				
FY 2001/02				
FY 2002/03				

TMDL UNIT – 111.10 EEL RIVER DELTA SEDIMENT/TEMPERATURE [DUE
2005]

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01				
FY 2001/02				
FY 2002/03	0.2		Assist USEPA staff	
Implementation Planning				
FY 2000/01				
FY 2001/02	0.2		Landowner Outreach/Monitoring	
FY 2002/03				
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01				
FY 2001/02				
FY 2002/03				

TMDL UNIT – 105 KLAMATH RIVER NUTRIENTS/TEMPERATURE

TASKS	Staff Resources	Contracts	Products	Completion Dates
TMDL Development				
FY 2000/01	0.2		Research (ODEQ, etc.)	
FY 2001/02	0.2		Stay involved (FERC, etc.)	
FY 2002/03	4.0		Develop basis for 3 TMDLs	
Implementation Planning				
FY 2000/01	0.3		Landowner Outreach/Monitoring	
		\$120,000	Data/Analysis	
FY 2001/02	0.3		Landowner Outreach/Monitoring	
		\$120,000	Data/Analysis	
FY 2002/03	0.8		Landowner Outreach/Monitoring	
		\$80,000	Data/Analysis	
Basin Plan Amendment				
FY 2000/01	0.1		Region-wide Sediment Plan	
FY 2001/02	0.1		Region-wide Sediment Plan	
FY 2002/03				
Implementation				
FY 2000/01	0.2		Landowner Assistance/Monitoring	
FY 2001/02	0.2		Landowner Assistance/Monitoring	
FY 2002/03	0.4		Landowner Assistance/Monitoring	

SECTION 3

REGIONAL ACTIVITIES

As introduced previously, some programs are regional (not prioritized on a watershed basis) or are occurring in WMAs not currently targeted. For instance, some mandated non-discretionary activities, such as core regulatory and underground tank cleanups, are carried out throughout the region. Targeting of a WMA is for the purposes of identifying issues and problems and developing an implementation strategy with public involvement. To the extent possible, we have folded all activities into individual WMA plans. The following explanation of individual programs addresses those activities occurring outside of WMAs where the process of individual prioritizing by WMA has not occurred yet.

Assessment: Due to resource constraints, assessments of waterbody condition outside of targeted WMAs is on a case-by-case basis and generally associated with specific pollution events or localized concerns. Current assessments are in association with the regional Water Quality Assessment and Clean Water Act Section 303(d) listings. Assessment of watersheds as ecological and economic units is essential to planning and resource allocation. At this time, such assessments are partially addressed in TMDL implementation plans, habitat conservation plans, and by local watershed groups and local agencies. The local efforts are sometimes supported by NPS planning grants through section 205(j) of the CWA. Our intent for the future is to develop or promote the development of a watershed restoration action plan for every watershed in the Region, building upon true watershed assessments.

Monitoring: Resources are extremely limited, although the intent is to build up a regional monitoring network. In addition to specific chemical and physical measurements, we propose to add biological monitoring. As each WMA is addressed we would like to leave an ambient monitoring program in place to provide long-term trend information and help target future problem areas.

These programs will be coordinated with other agencies and groups with interests in monitoring. For example, using the Russian River Watershed as a pilot area, we are developing a monitoring consortium of all dischargers to maximize resource use and opportunities for coordination and sharing, improve effectiveness, provide information to a wide group, and especially important to determine trends in water quality. If this effort is successful we will expand the concept to the entire region.

We also intend to build geographic information system (GIS) capabilities into an ambient program, providing a key to monitoring information, as well as using GIS as a format for data on watershed condition. See Appendix C for the GIS approach.

Essentially no monitoring is taking place outside of the targeted WMAs at this time, with the exception of compliance monitoring of waste dischargers not in targeted WMAs. Monitoring associated with individual WMAs has not been funded, so there is no long-term monitoring with the exception of the Russian River. Consequently, monitoring needs are stacking up, waiting for funding. However, we are involved with other agencies in large-scale, ambient water quality monitoring efforts such as the State Mussel Watch Program, Toxic Substances Monitoring and U.S. EPA's Environmental Monitoring and Assessment Program. Additionally, addressing the ocean and near shore areas not included in harbors or bays in individual WMAs is a necessary part of the process. We will attempt to determine the extent to which land-based activities are affecting ocean resources when data indicate ocean impacts. Some form of regional or statewide ocean and near shore monitoring program should be supported.

Tracking: As an adjunct to our monitoring efforts we hope to utilize a comprehensive set of databases to track trends in water quality, compliance with waste discharge requirements, and determine the effectiveness of restoration projects and installation of BMPs including applied NPS management measures and practices. These databases could include SWIMS, SINC, self-monitoring reports, THPs post-harvest inspections, and grant project reports via a survey form submitted to the State Water Resources Control

Board (SWRCB). The SWRCB has a contract with the Information Center for the Environment (ICE) at U.C. Davis to track the effectiveness of management measures addressed in grant projects. This information will be available to us through the CERES database. The databases will also include data from volunteer monitoring efforts. It is anticipated that each regional board will have the benefit of one-third of a PY to help implement volunteer monitoring in the region. Local Resource Conservation Districts are actively promoting volunteering monitoring and gathering of data. Any information from these data sources that is appropriate will be incorporated into the developing GIS system..

In addition to the database work, the NCR through the reorganization process will be forming “watershed teams” that will meet on a regular basis to track all activity and efforts in each WMA, document changes and trends, and formulate new strategies. A necessary part of that effort is an information management team.

Core Regulatory: Waste discharger permit issuance/updates and compliance inspections occur on a scheduled basis per the SWRCB Administrative Procedures Manual. Internally within the NCR dischargers are prioritized by category, those of highest priority receiving attention first (see Appendix A). As resources allow, staff move down through the priority list. Storm water program activities are targeting the highest priorities as well. Enforcement occurs on an as-needed basis, regardless of location. Resources expended outside the targeted WMAs are detailed in the *Budget* section (Section 4).

Ground water: Significant efforts are occurring in the Underground Tank Program and other ground water programs. Though considerable work is done within the targeted WMAs, the prioritization of activities is not necessarily on a watershed basis. Groundwater and surface water contamination is suspected at former and existing mill sites which historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem. To the extent such activities are, they have been incorporated into the WMA sections.

Water Quality Certification: Certification pursuant to Clean Water Act Sections 401 and 404 occur on an as-needed basis as well. We have set up a special team to coordinate our activities in this regard and to deal with the issue of a regional policy on wetlands. Expected resources to address these issues are detailed in a resource allocations matrix in the *Budget* section.

Nonpoint Source: Non-timber nonpoint source activities occur entirely within the targeted WMAs. See Appendix D *Nonpoint Source Tables*, Tables 2 and 3 for short-term NPS objectives and education and outreach activities in each WMA. Table 7 outlines resource allocations for NPS activities.

Timber harvest related nonpoint source activities were significantly augmented in FY 99-00, and are receiving increased attention in CWA Section 303(d) listed waterbodies. Activities in general are detailed in the individual WMA sections. Some timber harvest and timber sale related activities are occurring outside of the targeted WMAs, and the resources are identified in the *Budget* section.

We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

Wetlands: The NCR has wetlands in lagoon areas along the coast and in the Santa Rosa Plain. Many of these areas are threatened by development activities such as new housing projects and vineyards. Long-term

goals are directed toward wetlands protection and management. These goals are consistent with the California Wetlands Conservation Policy that emphasizes the following:

- "Ensure no over all net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property."
- "Reduce procedural complexity in the administration of State and Federal wetlands conservation programs."
- "Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetland conservation and restoration."

Currently the NCR has no watershed-specific goals for wetlands. Most activities to protect wetlands take the form of CWA section 404 review and CWA 401 Water Quality Certification. At this time, other agencies are taking the lead on wetlands in the region such as the Army Corps of Engineers, the US Fish and Wildlife Service, the Department of Fish and Game, and the Division of Water Rights. We intend, in the near future, to develop a policy concerning wetland conservation in the region starting with an inventory and mapping of the resource, assessing the current conditions, and forming a strategy for conservation.

Local Contracts: Clean Water Act sections 205(j) and 319(h) provide grant funds for projects in the NCR. All grants are targeted by WMA. Priority is given to 205(j) grant proposals that are for watershed assessments and for watershed enhancement plans. Priority is given to 319(h) grant proposals that are for TMDL activities, fish habitat restoration and riparian enhancement, and for erosion and sediment control. See Appendix D *Nonpoint Source Tables*, Tables 4A and 4AA for targeted implementation and planning projects for FY 00-01.

Water Quality Planning: Planning efforts are logically associated with some activities in the targeted WMAs, however the Triennial Review of the Basin Plan identifies issues that are broader than individual basins or watersheds. Planning activities that have a regional perspective are:

- consideration of revising and/or adding water quality objectives for dissolved oxygen, temperature, and nutrients, and
- review of the Nonpoint Source Action Plan
- review of beneficial uses
- develop a regional sediment implementation plan to facilitate implementation of sediment TMDLs

The most current Triennial Review process was initiated in April of 1998, and will be revisited in 2001.

SECTION 4

BUDGET

The budget, WMI Resource Allocation Summary, presented in this Section is our best estimate of resources available for FY 2000-01 based on a January 2000 budget projection. The allocations are for program activities in each WMA and are expressed in PYs.

The FY 1999-00 budget contained a considerable increase in funding for forestry activities, from eight staff to 28 staff. Consequently, our forestry program is addressing all harvest plans near waterbodies and has a special unit for the Pacific Lumber Co. activities associated with their Habitat Conservation Plan and negotiated operations from the Headwaters Forest negotiations. Our non-forestry NPS staff budget was increased by 1 PY, which was devoted to a much needed hillside vineyards outreach program.

We also received an additional 3.5 PYs of state funding for TMDL activities, relieving some of the pressure felt from a seriously underfunded mandate. Planning for the next decade's TMDL activity brings out the obvious magnification of unresolved issues and problems. TMDL and Implementation Plan development requires still more resources than we currently have. Implementation of a TMDL once developed also requires long-term resources.

To address TMDLs requires a melding of programs, which will address some Nonpoint Source in the region, but which we estimate will require additional funds for:

Monitoring and Assessment: assessment of watershed conditions - limiting factors analysis, source analysis, sediment budgets; monitoring of established TMDLs and those in development to fine-tune loading estimates, etc.

TMDL and Implementation Plan development: the actual loading estimates and development of TMDLs and implementation plans is separate from, but uses the products of monitoring and assessment.

Planning: TMDL and implementation plan adoptions, plus revisions in the next eight years (the Garcia TMDL Basin Plan Amendment took more staff time than any other single Basin Plan amendment in the history of the Region)

TMDL Implementation: Once a TMDL is in place, we need: staff to implement, additional monitoring of the effectiveness of the controls, fine-tuning of the loading estimates, and fine-tuning of the strategy. That also involves lots of outreach to the TMDL watersheds (e.g., we are devoting about 0.6 PY to the Garcia for implementation, excluding monitoring).

In the meantime, planning, monitoring and assessment, nonpoint source, and core regulatory remain under funded. The consequence is the inability to meet all mandated tasks and a backlog of tasks that builds into the future, including:

- addressing priorities identified through the Basin Plan Triennial Review process,
- monitoring and assessment and Clean Water Act Section 305(b) reporting requirements,
- nonpoint source outreach and cooperative projects not directly associated with a TMDL,
- review of self-monitoring reports,
- inspections on Category 2 dischargers (currently we do not inspect Category 3, and only about half of Category 2),
- inspections on stormwater runoff discharges,
- enforcement, and
- complaint response.

The WMI Resource Allocation Summary that appears on the next two pages is our best guess of resources available for FY 2000-01 and their distribution across WMAs. Additional funding would be used for the priority activities outlined in each individual WMA section.

FY 2000-01 WMI Resource Allocation Summary – North Coast Region

PROGRAM ACTIVITIES	Russian/ Bodega	Eel	Humboldt	Trinity	Klamath	N. Coast Rivers	Region wide	TOTAL
WATERSHED MANAGEMENT								
Stakeholder Support								
Integrated Plan/Chapter Update								
Program & Agency Coordination								
Watershed Management Subtotal PYs	0.3	0.0	0.0	0.0	0.0	0.0	1.0	1.3
MONITORING								
Ambient Monitoring (e.g. Basin Plan, Mussel Watch, TSCP, CWA 305(b), CWA 303(d))								
BPTC Monitoring								
Core Regulatory (Receiving Water)								
Ground Water Monitoring								
Nonpoint Source Monitoring								
Watershed Monitoring								
Monitoring - Data Management								
Monitoring Subtotal PYs	0.4	0.0	0.0	0.0	0.0	0.5	0.3	1.2
ASSESSMENT								
CWA Section 305(b) Water Quality Assessment								
CWA Section 303(d) Waterbody Assessment								
Water Quality Assessment (Other)								
BPTC Data Assessment								
Ground Water Assessment								
Nonpoint Source Assessment								
Watershed Assessment (e.g. state of the watershed reports)								
Assessment Subtotal PYs	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.5
NONPOINT SOURCE								
Program Development								
Implementation								
Forestry Program								
319(h) RFP Project Solicitation & Contract Management								
Nonpoint Source Subtotal PYs	6.0	2.7	11.4	2.2	4.3	4.1	4.1	34.8
PLANNING								
Basin Plan Policy Amendments								
Basin Plan Water Quality Standards Amendments								
Basin Plan Triennial Review								
CWA Section 205 (j) RFP Project Solicitation & Review								
CWA Section 205 (j) Grant Contract Management								
Basin Plan - Other								
Planning Subtotal PYs	2.5	0.0	0.0	0.0	0.0	0.0	1.2	3.7
WETLANDS								
Wetlands Planning								
CWA Section 401 Water Quality Certification								
Wetlands Grant Project Management								
Wetlands Subtotal PYs	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
TMDL								
TMDL Development								
Implementation Planning								
Basin Plan Amendment								
Implementation Oversight & Tracking								
TMDL Subtotal PYs	0.2	0.5	0.5	0.5	0.5	5.9	1.9	10.0
NPDES WASTEWATER								
NPDES Enforcement								
NPDES Inspections (Majors)								
NPDES Inspections (Minor)								
NPDES Monitoring Report Review								
NPDES Permitting Scheduled (Majors)								

FY 2000-01 WMI Resource Allocation Summary – North Coast Region

PROGRAM ACTIVITIES	Russian/ Bodega	Eel	Humboldt	Trinity	Klamath	N. Coast Rivers	Region wide	TOTAL
NPDES Permitting Scheduled (Minors)								
NPDES Permitting Unscheduled (Majors)								
NPDES Permitting Unscheduled (Minors)								
NPDES Pretreatment Program								
NPDES - Other								
NPDES Program Management								
NPDES Subtotal PYs	3.2	0.8	0.8	0.6	0.4	1.5	0.6	7.9
NPDES STORM WATER								
NPDES Storm Water - Municipal								
NPDES Storm Water - Industrial								
NPDES Storm Water - Construction								
NPDES Storm Water - Other								
NPDES Storm Water Program Management								
NPDES Storm Water Subtotal PYs	1.0	0.2	0.4	0.2	0.2	0.2	0.0	2.2
CHAPTER 15								
Chapter 15 Enforcement								
Chapter 15 Inspections								
Chapter 15 Monitoring Report Review								
Chapter 15 Permitting Scheduled								
Chapter 15 Permitting Unscheduled								
Chapter 15 Other								
Chapter 15 Program Management								
Chapter 15 Subtotal PYs	1.2	0.1	0.3	0.2	0.5	0.6	0.0	2.9
NON CHAPTER 15								
Non Chapter 15 Enforcement								
Non Chapter 15 Inspections								
Non Chapter 15 Monitoring Report Review								
Non Chapter 15 Permitting Scheduled								
Non Chapter 15 Permitting Unscheduled								
Non Chapter 15 Other								
Non Chapter 15 Program Management								
Non Chapter 15 Subtotal PYs	3.5	0.8	1.2	0.7	1.3	0.8	1.2	9.5
ABOVEGROUND TANKS								
Aboveground Tanks Subtotal PYs	0.8	0.2	0.0	0.2	0.2	0.4	0.5	2.3
DoD								
DoD Subtotal PYs	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.9
SLIC								
SLIC Subtotal PYs	1.6	0.1	0.7	0.2	0.1	0.2	0.3	3.2
UNDERGROUND TANKS								
Underground Tanks Subtotal PYs	4.2	1.7	0.7	0.6	1.3	1.9	0.0	10.4
PROGRAM MANAGEMENT								
PROGRAM MANAGEMENT Subtotal PYs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	19.3	4.2	8.2	3.2	4.8	10.1	6.7	91.0
BDAS TOTAL								93.0

APPENDIX A
Watershed Planning Chapter
Partial Inventory of Work Activities
North Coast Regional Water Quality Control Board

Table of Contents

Section 1 NPDES MAJOR	A-1
Section 2 NPDES MINOR	A-2
Section 3 NPDES STORMWATER PERMIT REVIEW/REISSUANCE	A-4
Section 4 NPDES PRETREATMENT INSPECTIONS (PCIs/AUDITS)	A-4
Section 5 NPDES COMPLIANCE INSPECTIONS	A-4
Section 6 CHAPTER 15 WASTE DISCHARGE REQUIREMENT REVIEW/REISSUANCE	A-5
Section 7 NON-CHAPTER 15 WASTE DISCHARGE REQUIREMENT REVIEW/REISSUANCE	A-7
Section 8 303(D) LISTING/TMDLS	A-17
Section 9 STANDARDS/BASIN PLANNING/TRIENNIAL REVIEW	A-17

APPENDIX A
Watershed Planning Chapter
Partial Inventory of Work Activities
North Coast Regional Water Quality Control Board

EXPIRATION/RENEWAL

<u>Activity</u>	<u>(year-mo)</u>
Section 1	
NPDES MAJOR	
(Note: We intend to renew permits on or prior to their expiration date)	
CA0022756 Crescent City, City of Ocean	2000/06
CA0022721 Ferndale, City of Francis Cr	2000/06
CA0005894 Louisiana Pacific Samoa, Inc. Samoa Pulp Mill Ocean	2000/06
CA0022748 Rio Dell, City of Eel R	2000/06
CA0022730 Fortuna, City of Eel R	2000/06
CA0005622 Pacific Gas & Electric Company Humboldt Bay Power Plant Humboldt Bay	2000/06
CA0023078 Fort Bragg MID #1 WWTP Ocean	2000/06
CA0023060 Willits, City of Eel R/Baechtel Cr	2000/06
CA0022977 Cloverdale, City of Russian R	2001/05
CA0023345 Windsor Water District Russian R/Pool Cr	2001/05
CA0022713 Arcata, City of Humboldt Bay	2003/02
CA0024449 Eureka, City of: Elk River POTW Humboldt Bay	2003/02
CA0022764 Santa Rosa, City of: Laguna Subregional WPCF Russian R/Laguna	2003/08
CA0005606 Masonite Corporation, Ukiah Mill	2003/12

Russian River

CA0022888	Ukiah, City of Russian R	2004/09
-----------	-----------------------------	---------

Section 2

NPDES MINOR

CA0024058	Sonoma County Water Agency: Russian River CSD Russian R *Administratively Extended	2000/08*
CA0023574	Covelo Community Services Dist. Eel R/Grist Cr	2000/06
CA0024716	GTE Calif Env Affairs: Contel of California	2000/06
CA0024686	Eel River Sawmills, Inc.: Alton Eel River	2000/06
CA0024945	Eel River Sawmills Mozzetti WWDS #2 Eel R	2000/06
CA0022781	Redway Community Services Dist Eel R/So Fk	2000/06
CA0023655	Vacu Dry Company Russian River	2000/06
CA0006955	Fulton Processors Russian River	2000/06
CA0024333	UC Davis: Bodega Marine Laboratory Ocean	2000/06
CA0005304	Georgia Pacific Corp: Fort Bragg Ocean	2000/06
CA0024171	Harwood Products: Branscomb Mill Eel River	2000/06
CA0023043	Sonoma County Water Agency: Forestville CSD Russian R/Green Valley- *Admin. Extended	2000/10*
CA0023639	Sonoma County Water Agency: Graton Csa No. 2 Russian R/Atascadero - * Admin. Extended	2000/10*
CA0006696	CA Dept of Fish & Game, Trinity River Hatchery Trinity River	2000/06
CA0006670	CA Dept of Fish & Game: Mad River Hatchery Mad River	2000/04
CA0006700	College of the Redwoods, POTW Humboldt Bay	2000/04
CA0005886	Louisiana Pacific Corp, Fort Bragg	2000/04

Ocean

Cas002499	Mission Trail Oil Company, Rotten Robbie	2000/05
CA0023051	Sonoma County Water Agency: Occidental CSD Russian R/Dutch Bill Cr	2000/07
CA0023761	Eureka Fisheries: Fields Landing Humboldt Bay	2000/10
CA0023671	Loleta Community Services Dist Eel R	2000/10
CA0024490	McKinleyville CSD Mad R	2001/04
CA0025011	Pacific Lumber Co: Tank Gulch SWDS	2001/06
CA0005843	Louisiana Pacific Corp: Ukiah Division Russian River	2001/08
CA0005584	Humboldt Creamery Association Eel River	2001/12
CA0005932	Simpson Timber Company: Korbel Mad River	2002/02
CA0025046	Trinity River Lumber Company	2002/02
CA0024040	Mendo Co WWD #2, Anchor Bay Ocean	2002/03
CA0024791	CA Dept of Fish & Game: Coyote Valley Fish Ocean	2002/08
CA0024350	CA Dept of Fish & Game: Warm Springs Hatchery Russian River	2002/08
CA0024473	Crescent City Harbor Dist: Seafood WW System Ocean	2003/02
CA0024589	Hewlett Packard, Valley Site Russian River	2003/02
CA0024481	Ocean Farms Inc., Bodega Bay Fish Farm Ocean	2003/03
CA0023027	HCRID #1, Shelter Cove POTW Ocean	2003/05
CA0024694	Optical Coating Laboratory Russian River	2004/07
CA0022870	Mendocino City CSD Ocean	2004/07
CA0023272	Tulelake, City of Lost R/T.i.d. 44-B-1	2004/08

CA0006017	Pacific Lumber Company: Scotia Eel River	2007/08
-----------	---	---------

Section 3

NPDES STORMWATER PERMIT REVIEW/REISSUANCE

97-119	Calif. Dept of Trans., Stormwater Discharge	2002-10
97-003	Santa Rosa DPW, Santa Rosa Area Stormwater	2002-03

Section 4

NPDES PRETREATMENT INSPECTIONS (PCIs/AUDITS)

CA0022713	Arcata, City of Humboldt Bay	PCI - 2001 PCI - 2003
This facility is not under a federally-approved program, rather is subject to state oversight only.		
CA0022756	Crescent City, City of Ocean	Aud -2000 2002
		PCI - 2000 2002
CA0024449	Eureka, City of: Elk River POTW Humboldt Bay	Aud - 2000 2001 2003
		PCI - 2000 2001 2003
CA0022764	Santa Rosa, City of: Laguna Subregional WPCF Russian R/Laguna	Aud - 2000 2002
		PCI - 2000 2002

Section 5

NPDES COMPLIANCE INSPECTIONS

Compliance inspections will be completed at least once per year, major NPDES receiving at least three per year. (Refer to WDS for specific dates.)

Section 6

CHAPTER 15 WASTE DISCHARGE REQUIREMENT REVIEW/REISSUANCE

92-066	Louisiana-Pacific Corporation Cloverdale WWDS Russian R/Icaria Cr	2000/06
93-08306	Trinity County-DPW, Weaverville SWDS Five Cent Gulch	2000/06
93-08317	Sonoma County Dept. Pub. Works, Central SWDS Stempel Cr	2000/06
89-068	Yreka, City of SWDS Shasta R/Unn Trib	2000/06
89-070	Weed, City of SWDS Shasta R/Beaughton Cr	2000/06
94-123	Ukiah, City of SWDS Russian R	2000/06
90-03501	Union Oil Co. of California, the Geysers Russian R/Big Sulphur Cr	2000/04
90-03501	Union Oil Co. of California, the Geysers Russian R/Big Sulphur Cr	2000/04
91-051	Santa Rosa Geothermal Company Class II WMU Russian R/Big Sulphur Cr	2001/04
96-002	Pacific Lumber Company, Tank Gulch SWDS	2001/06
87-004	State of California-DWR Geo, Rorabaugh Lease Russian R/Big Sulphur Cr	2002/01
92-075	CCPA No. 1, CCPA No. 1 Russian R/Big Sulphur/Squaw Cr	2002/06
97-09001	Del Norte Solid Waste Authority, Crescent City SWDS Lake Earl	2002/09
93-08304	City Garbage Company, City Garbage Company-SWDS Humboldt Bay/Trib	2003/04
93-08302	Mendocino Co Solid Waste Div. Laytonville SWDS Eel R/Cahto Cr	2003/09
93-08313	County of Siskiyou, Tulelake-Sheepy Ridge SWDS Klamath R/Lower Klamath Lake	2003/09

93-08314	Weed, City of SWDS Shasta/Beaughton Cr	2003/09
93-08315	Yreka, City of SWDS Shasta R/Unn Trib	2003/09
94-020	Louisiana-Pacific Corporation Caspar WWDS Doyl Cr	2004/03
95-006	Calpine Geothermal Co., Calpine Geo Co CGC 7Ca1862 Russian R/Big Sulphur Cr	2005/03
95-00501	Calpine Geothermal Co., Calpine Geo Co CGC Unit 13 Russian R/Big Sulphur Cr	2005/03
95-016	Louisiana-Pacific Corporation York Ranch WWDS #3 Russian R/York Cr	2005/04
93-08301	Willits, City of SWDS Eel River/Berry Canyon Cr.	2005/06
93-08305	Mendocino County Solid Waste Div. South Coast SWDS Gualala R/No Fk	2007/02
97-044	Northern Cal. Power Agcy Big Sulphur & McDonnell C Russian R/Big Sulphur	2007/05
93-08308	Siskiyou Co. Dept Public Works, Happy Camp Landfill Klamath R	2008/01
88-084	Tunzi Inc. - Larry Tunzi, Tunzi Soil Amend Proj. Big River/Lagoon Cr	2008/06
93-08303	Mendocino Co Solid Waste Div. Caspar SWDS Doyl Cr	2008/07
88-142	Bedrock Inc., Mendocino Co. H-H Ranch Septage Ross Cr	2008/11
99-035	Union Oil Co. of California, Waste Mgmt Unit Russian R/Big Sulphur Cr	2009/07
96-044	Sonoma County Dept. Pub. Works, Annapolis SWDS Gualala R	2011/05
81-040	Georgia-Pacific Corporation, Fort Bragg WWDS Noyo R	2011/03
97-005	Pacific Lumber Company Hely Creek WWDS Hely Cr	2012-02
98-060	Louisiana Pacific Corporation Samoa SWDS Ocean	2013/05
83-058	Roseburg Forest Prod., Roseburg Lumber Co. SWDS Shasta R	2013/05

84-064	Louisiana-Pacific Corporation Cloverdale WWDS Russian R/Icaria Cr	2014/07
--------	--	---------

Section 7

NON-CHAPTER 15 WASTE DISCHARGE REQUIREMENT REVIEW/REISSUANCE

87-118	Noranda Grey Eagle Mines, Inc., Grey Eagle Mine Klamath R/Indian Cr/Luther Gl	1992/12
81-064	Standard Structures, Inc. Russian R/Pool Cr	2000/06
87-020	Vintners Inn Russian R/Mark West Cr/Windsor Cr	2000/06
87-105	Arcata Redwood Company Orick Sawmill Redwood Cr/Prairie Cr	2000/06
87-129	L-P Corp.& Eureka City, Samoa Cargo Dock Dredging Humboldt Bay	1997/10
87-011	Blue Lake Forest Products Mad R/Mill Cr	2000/06
88-016	Schmidbauer Lumber Company, Eureka Mill Humboldt Bay/Unn Trib	2000/06
88-037	Foppiano Wine Company, Inc. Russian R	1998/03
88-054	Klein Family Vintners, Piper Sonoma Russian R	2000/06
88-067	Balverne Cellars, Inc. dba Balverne Winery & Vineyard Russian R/Windsor Cr	2000/06
83-076	Ford Gravel Company, Inc., Ford Aggregate Company Russian R	1998/07
83-078	Gualala Aggregates, Inc. Gualala R/So Fk	2000/06
83-089	Redwood Valley Gravel Products Russian R	2000/06
88-126	Garberville Sanitary Dist. POTW Eel R/So Fk	2000/06
93-086	Roseburg Forest Products, Weed Shasta R/Beaughton Cr	2000/06
93-088	Weed Groundwater Treatment, Baxter, I.P., Roseburg Shasta R/Beaughton Cr	2000/06
83-138	Bohan & Canelis Inc.	2000/06

	Russian R/Austin Cr	
88-145	American Aircraft Painting, Am. Aircraft Painting Russian R/Dry Cr.	1998/11
89-035	Fetzer Vineyards, Fetzer Vineyards Valley Oaks Forsythe Cr/Seward C	2000/06
89-045	Sonoma County PWD, Korbel Maintenance Site Russian River	2000/06
89-076	Redwood Empire Div of Pac State, Redwood Empire Russian R/Oat Valley Cr	2000/06
92-066	Shoreline Development Co., Former Shell	2000/06
89-038	Sierra Pacific Industries, Hayfork Trinity R/S Fk/Hayfork Cr	2000/06
94-088	Baxter, J. H., & Company Shasta /Beaughton Cr	2000/06
89-101	Willits Redwood Company Eel R/Broadus Cr	2000/06
92-066	Farrington, Steve, Farrington Property	1999/08
89-130	Crescent City Harbor Dist., Sp Preven Pacific Ocean/Crescent City Harbor	2000/06
89-117	Univ. of Calif., Davis, Bodega Marine Lab-Domestic Bodega Bay/Pac Ocean	1999/11
85-024	Thousand Trails, Inc., Duncans Mills Campground Russian R	2000/06
85-040	Louisiana Pacific Corp., Samoa Community Sewage Disp Ocean	2000/06
85-079	Manzana Products Company, Inc. Russian R/Green Valley Cr	2000/05
90-076	Sonoma County Water Agency, Airport WRF Russian R/Mark West Cr	2000/05
92-066	C & K Market Inc. Etna Creek	2000/05
85-095	De Lorimier Winery Russian R	2000/07
98-102	Clos du Bois Wines Inc., Clos du Bois Winery Russian R	2008/09
95-088	Bace Environmental Inc., Circle K (Former)	2000/10
95-088	Ultramar Inc., Beacon Station 622	2000/10

95-088	Winter, Herbert, Shell Service Station, Cotati	2000/10
95-088	Exxon Station 7-0220	2000/10
85-175	St of CA-CDF, Trinity R Conserv Cmp St/Pds Trinity R/Clair Engle Lake	2000/12
90-216	Annapolis Milling Company, Inc. Gualala R/Buckeye Cr	2000/12
86-006	Henrie, Patrick and Jo Ann, Meadows Mobilehome Park	2001/01
91-019	Westbrook-Ship Ashore Resort Smith R	2001/02
96-017	Ecodyne/The Marmon Group, Ecodyne/Shiloh Ind. Pk Russian R/Pool Cr	2001/03
86-047	San Francisco Bay Area Council, Camp Royaneh Russian R/E. Austin Cr	2001/04
86-070	US Air Force, Point Arena AFS STP Garcia R	2001/04
91-064	CalTrans, Willow Cr Maintenance Station Trinity River	2001/04
91-066	CalTrans, Maintenance Stn, Bodega Bay Bodega Bay	2001/05
91-067	CalTrans, Maintenance Stn, Sebastopol Russian R/Laguna	2001/05
91-087	Scharffenberger Cellars Inc. Navarro R/Indian Cr	2001/06
91-065	Pacific Gas and Electric, Santa Rosa Service Center Russian R	2001/08
91-121	Georgia-Pacific Corporation, Soil Amendment Ten Mile R/Little Va	2001/08
86-164	USDA Six Rivers National Forest, Orleans R.S. STP Klamath R	2001/09
91-130	Bodega Bay Public Util. Dist., WW Recl. Fac. Bodega Harbor	2001/09
91-14001	Mobile Estates Humboldt Bay/Freshwater Slough	2001/09
86-197	Naco West, Naco West Russian River Park Russian R	2001/11
91-164	Berglund Family Vineyards Inc., Soil Remediation Outlet Cr/Eel River	2001/11

92-003	Pellini, Peter R., Pellini Chevrolet Russian R/Laguna	2002/01
92-022	Wallace & Jones, Indianola MHP Humboldt Bay	2002/02
92-027	CalTrans, Eureka Maintenance Stn, Bracut Humboldt Bay	2002/02
87-028	Fritz Cellars Russian R/Dutcher Cr	2002/03
87-060	Wine World Estates, Chateau Souverain Russian R	2002/05
87-061	Georgia-Pacific Corporation, Ukiah Resin Plant Russian R	2002/05
92-057	North Marin County Water Dist., Oceana Marin Estero de San Antonio	2002/06
92-080	Healdsburg, City of STP Russian R	2002/06
92-076	Robert Peters dba E-Z Livin' Mobile Home Park Eel R/Haehl Cr	2002/06
82-076	Caspar South Water District Ocean	2002/07
92-103	Crescent City Harbor District, Mainten. Dredging Pacific Ocean/Crescent City Harbor	2002/08
97-080	Shiloh Associates, Shiloh Wastewater Reclam Proj	2002/08
87-12101	Grenada Sanitary District STP Shasta R	2002/09
92-120	Gualala Community Services Dist, WWTP Gualala R	2002/09
87-109	Syar Industries, Inc., Doyle Plant Russian R	2002/10
87-110	Shamrock Materials, Inc., Cloverdale Russian R	2002/10
87-123	Syar Industries, Inc., Healdsburg Russian R	2002/10
92-128	North Coast Railroad Authority, North Coast Railroad Eel R	2002/10
92-139	Sonoma County Water Agency, Mirabel/Wohler River Div Russian R	2002/12
93-009	Justin Meyer/Ray Duncan, Silver Oak Cell., Alex. Vly.	2003/01

93-003	Parkside Estates Mbl Home Park Eel R/Haehl Cr/Unn Tri	2003/01
93-011	Hopland Public Utilities Dist. Russian R	2003/01
93-003	Parkside Estates Mbl Home Park Eel R/Haehl Cr/Unn Tri	2003/01
83-052	Lewiston Park Mutual Water Co. STP Trinity R	2003/04
88-069	Mabry, William B., III , Landmark Vineyards Russian R/Mark West Cr/Windsor Cr	2003/05
88-071	Vacu-Dry Company Russian R/Laguna	2003/05
88-072	Stemmler, Robert, Stemmler Winery Russian R/Dry Cr	2003/05
88-085	Preston, Louis D., Preston Winery	2003/06
88-086	St of CA, Dept of Parks & Rec, Van Damme State Park Little R	2003/06
93-067	Sea Ranch Association, Sea Ranch #6, Zone 2	2003/06
88-109	Mazzocco Family Revocable Tst, Mazzocco Vineyds Inc. Russian R/Dry Cr	2003/08
83-084	St of CA-CDF, High Rock Camp, Humboldt Cnty Eel R	2003/09
93-099	Ferrari-Carano Vineyard & Winery Russian R	2003/10
88-148	New Education Dev. Syst., Inc., Camp Maacama Russian R/Maacama Cr	2003/11
79-019	Santa Rosa Meat & Poultry Russian R/Laguna	2004/01
94-002	Kendall Jackson, Vinwood Cellars Russian R	2004/01
94-003	U.S. Army Corps of Engineers, Liberty Glen Cgrnd Russian R/Dry Cr/Lake Sonoma	2004/01
94-004	Sonoma County Water Agcy, Oceanic Prop. North Plant Ocean	2004/01
94-014	Geo Energy Partners, Aidlin Russian R/Big Sulphur Cr	2004/02
94-028	Blue Lake, City of POTW Mad R	2004/02

94-032	Weott Comm. Services Dist, Weott POTW Eel R/So Fk	2004/02
80-047	Timber Crest Farms Russian R/Dry Cr	2004/04
74-125	Mgm Brakes, Inc. Russian R/Porterfield Cr	2004/06
94-01401	Geo Energy Partners, Aidlin Russian R/Big Sulphur Cr	2004/06
94-071	Calif. Dept of Corrections, Pelican Bay Prison STP Smith R	2004/06
94-085	Baywood Golf & Country Club	2004/06
79-130	Fisher Vineyards, Fisher Winery Russian R	2004/07
89-096	Syar Industries Inc. Russian R/Dry Cr	2004/08
94-101	Wilson, Ken, Wilson Winery	2004/08
84-118	Del Norte Comm Dev, Klamath Comm. Services Dist. STP Klamath R	2004/09
94-124	CalTrans, Hwy 101, PM 5.4 - 9.2	2004/10
89-140	Hewlett-Packard Company Russian R/Paulin Cr	2004/11
85-004	Timber Products Company, Yreka Division Shasta R/Unnamed	2005/01
90-010	Remco Hydraulics Eel R/Baechtel Cr	2005/02
95-002	Manila Community Services Dist, Manila CSD STP Manila Gwater	2005/02
85-016	Calif Northern Railroad Russian R	2005/03
95-017	Graton Land Company, St. Jean Sparkling Wines Russian R/Atascadero Cr	2005/03
95-031	Associated Vintage Group Inc., McDowell Valley Vyd McDowell Cr	2005/04
85-058	Schlumberger, Michel, Domain Schlumberger Russian R/Dry Cr	2005/05
85-069	St of CA-CDF, Alder Camp, Del Norte County Klamath R	2005/05

95-051	Redding Dairy C/O Don Redding	2005/06
80-100	Parnum Paving, Inc. Russian R	2005/07
80-169	Eagle Rock, Inc., La Grange Pit Oregon Gulch	2005/09
95-072	Kendall Jackson Winery, Kendall Jackson Winery Russian R/Mark West Cr	2005/09
95-073	Kendall Jackson Winery, J. Stonestreet & Sons Wry	2005/09
85-136	Frei Bros. Winery Russian R/Dry Cr	2005/10
90-227	Quality Resorts of America, Redwood Trails Cpgnd	2005/12
85-162	US DOT, U.S. Coast Guard Training Ctr. Stemple Cr	2005/12
81-016	Casini Enterprises, Inc., Casini Ranch Family Cpgnd Russian R	2006/01
91-023	USDI, Redwood National Park,Requa Housing Site Ocean	2006/02
91-035	Louisiana Pacific Corporation, Rounds Lumber Russian R/Unn Trib	2006/03
96-011	Sonoma County Water Agcy, Oceanic Prop. Ctrl Plant Ocean	2006/03
96-015	Point Arena, City of WWTP Point Arena Cr	2006/03
86-093	Miranda Community Services Dist., POTW Eel R/So Fk	2006/04
81-131	Montair Sub. Homeowners Assoc.,Montair Subdiv STP Unnamed	2006/05
86-052	Cambiaso Vineyards Russian R	2006/05
96-028	Westport County Water District Ocean	2006/05
86-110	Mendocino Vineyards, Cresta Blanca Vineyards Russian R/Ackerman Cr	2006/06
86-114	TMI Corporation, Parducci Wine Cellars Russian R	2006/06
86-116	Calpella County Water District WWTP Russian R	2006/06
86-129	Davis Bynum Winery, Inc.	2006/06

Russian R

96-036	Matanzas Creek Winery, Inc. Russian R/Matanzas Cr	2006/06
96-039	Filiti, Anthony, Parmallino Cheese Co., Inc.	2006/06
96-040	Luther Burbank Center Russian R/Mark West Cr	2006/06
96-041	Korbel, F. & Brothers, Inc. Russian R	2006/06
96-042	Martini & Prati Wines, Inc. Russian R/Mark West Cr	2006/06
96-043	Brutocao Vineyards, Brutacao Vineyards	2006/06
96-045	Sonoma-Cutrer Vineyards, Inc. Russian R/Mark West Cr	2006/06
96-056	Trione Vineyards & Penfolo Winery, Geyser Peak Winery Russian R	2006/08
96-068	Montague, City of STP Shasta R/Oregon Slough	2006/09
96-069	Yreka, City of, Yreka STP Shasta R/Yreka Cr	2006/09
96-07001	Weed, City of, Weed Shastina STP Shasta R/Boles Cr/Beaughton Cr	2006/09
96-07002	Weed, City of, Weed City STP Shasta R/Boles Cr/Beaughton Cr	2006/09
96-075	Lundeberg Maryland Seamanship School Russian R/Mark West Cr/Porter Cr	2006/10
86-179	Roederer U.S., Inc., Roederer Winery Navarro R/Lazy Cr	2006/10
96-096	Georgia-Pacific Corporation, Soil Amendment Ten Mile R/Little Va	2006/12
97-011	Lewiston Valley Water Co Inc. STP Trinity R/Hoadley G	2007/02
87-017	U.S. Army Corps of Engineers, Lake Mendo Rec Area Russian R/Lake Mendocino	2007/03
97-025	Kendall Jackson Winery, Hartford Court Winery	2007/03
92-064	Canevari, Robert, Canevari Timber Company	2007/05
97-041	US Air Force, USAF Point Arena Air Force Station	2007/05

97-052	St of CA-CDF, Parlin Fork Cons. Camp Noyo R./Parlin Fork	2007/06
87-094	Rio Lindo Academy Russian R	2007/07
97-069	Preston Lumber Company, Philo Navarro R/Indian Cr	2007/08
97-078	Canadian Reserve Inc., Bully Choop Mine	2007/08
97-067	Sonoma County Water Agency, Geyserville CSD Russian R	2007/08
97-091	Lake Shastina Comm. Services Dist. STP Shasta R	2007/09
97-093	Newell CWD STP Lost R	2007/09
97-094	Weaverville Sanitary Dist. STP Trinity R/Weaver Cr	2007/09
93-01001	Irish Beach Water Dist, Irish Beach units 1,2,3,4 Irish Gulch	2008/01
98-008	Belvedere Winery, Belvedere Winery	2008/01
98-001	Fort Jones, Town of STP Scott R/Moffett Cr	2008/02
98-002	Happy Camp Sanitary District STP Klamath R	2008/02
98-003	Etna, City of STP Scott R/Johnson Cr	2008/02
98-004	Dorris, City of STP Klamath R/Meiss Lake	2008/02
98/029	Weibel Inc. Russian R	2008/03
88-038	Chalk Hill Winery Russian R/Unnamed	2008/03
88-032	Iron Horse Vineyards, Iron Horse Ranch & Vineyards Russian R/Green Valley Cr	2008/03
88-052	Santa Rosa Utilities Department, Oakmont STP Russian R/Santa Rosa Cr/Oakmont Cr	2008/04
98-051	Trinity Co DPW - Hayfork WWTF Salt Creek	2008/05
98-052	Prince Memorial Greenway Santa Rosa Creek	2008/05

88-070	Jordon Winery Russian R	2008/05
88-079	Tennant Community Services Dis, Tennant CSD St/Lf Shasta R/Antelope Cr	2008/06
88-090	Yayin Corporation, Urmann Ranch Russian R	2008/07
98-101	Assisted Living Facility Elk Creek	2008/09
88-149	Wine World Estates, Wine World Inc. Russian R	2008/11
88-142	Bedrock Inc., Mendocino Co. H-H Ranch Septage Ross Cr	2008/11
98-122	Gay Dennen Moore, Heritage House Ocean	2008/12
98-125	Odd Fellows WWTF Russian River	2008/12
98-122	USFS Klamath National Forest, Oak Knoll Work Ctr	2008/12
89-017	Pedroncelli, J., Winery Russian R/Dry Cr	2009/02
89-040	U.S. Army Corps of Engin., Sacto, L. Sonoma Waste Sys Russian R/Dry Cr	2009/04
99-040	Basic American Foods, Hatfield Lost River	2009/07
99-030	Sonoma Co DPW, Hacienda Bridge	2009/07
99-031	CDOT, Noyo River Bridge	2009/07
99-037	Kendall-Jackson Winery, Santa Rosa Barrel Warehouse	2009/07
99-044	Humboldt County DPW, Bear Canyon Bridge	2009/07
99-060	Benbow Valley Investments, Benbow Inn	2009/08
99-061	Sonoma County DPW, Warms Springs Creek Bridge	2009/08
99-066	Seghesio Wineries, Inc. Russian R/Foss Cr	2009/09
99-067	Barlow Company Russian R/Laguna	2009/09
99-061	Barlow Company, The	2009/08
94-128	Strategix Capital Inc., Pezzi King Vineyards	2009/12
95-062	Allen, Ken, Anderson Valley Brewing	2010/08

Navarro R

80-170	Wetherell Properties, Inc., Wetherell MHP Smith R	2010/09
96-001	Alexandre, Blake & Stephanie, Alexandre Dairy Smith R/Tryon Slough	2011/01
83-059	Kaiser Sand & Gravel Company, Windsor #1 Russian R	2011/05
96-071	Mendo Cty Res Conservation Dist., Garcia River Watershed Restor.	2011/09
81-073	Sonoma County Water Agency, Maintenance Russian R	2011/08
82-001	Baxman Gravel Company, Inc. Ten Mile R	2012/01
82-082	St of CA-CDF, Deadwood Conserv. Camp St/Lf Klamath R/Clear Cr/Mc Adams	2012/07
97-062	St of CA, Dept of Parks & Rec, Salt Point State Pk Ocean	2012/08
99-041	Safety Kleen Systems	2014/07

Section 8

303(D) LISTING/TMDLS

Please refer to Section 2.7 of the Watershed Planning Chapter, Clean Water Act Section 303(d) (TMDLs), for a complete listing of listed waterbodies and anticipated completion dates.

Section 9

STANDARDS/BASIN PLANNING/TRIENNIAL REVIEW

The following items are from the 1998 Triennial Review of the Basin Plan. Scheduling is entirely dependent on funding.

Amend Table 2-1, Beneficial Uses	1999-00
Revise water quality objectives for dissolved oxygen and temperature	2000-01
Develop regionwide sediment implementation plan for sediment listed waterbodies	2000-01
Amend Section 4, Implementation Plans, to recognize California's source water program	2000-01
Consider specific objectives for nutrients	2000-01
Amend Section 4, Implementation Plans, to recognize California Toxics Rule implementation	2000-01

APPENDIX B

BENEFICIAL USE DEFINITIONS

Municipal and Domestic Supply (MUN) -- Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Agricultural Supply (AGR) -- Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Industrial Service Supply (IND) -- Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

Industrial Process Supply (PROC) -- Uses of water for industrial activities that depend primarily on water quality.

Groundwater Recharge (GWR) -- Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Water Contact Recreation (REC-1) -- Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.

Non-Contact Water Recreation (REC-2) -- Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Commercial and Sport Fishing (COMM) -- Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Warm Freshwater Habitat (WARM) -- Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Cold Freshwater Habitat (COLD) -- Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Marine Habitat (MAR) -- Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

Wildlife Habitat (WILD) -- Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Preservation of Areas of Special Biological Significance (BIOL) -- Includes marine life refuges, ecological reserves and designated areas of special biological significance, such as areas where kelp propagation and maintenance are features of the marine environment requiring special protection.

Rare, Threatened, or Endangered Species (RARE) -- Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

Migration of Aquatic Organisms (MIGR) -- Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Spawning, Reproduction, and/or Early Development (SPWN) -- Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Shellfish Harvesting (SHELL) -- Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.

APPENDIX C

GEOGRAPHIC INFORMATION SYSTEMS DISCUSSION

Technical and Administrative Aspects of the Activity

GIS can be a very effective tool for use by staff of the SWRCB and RWQCB's in preparing TMDL's and implementing the Watershed Management Initiative. However, to become useful, a GIS program must include hardware, software, funding and, most important of all, appropriately trained staff. Development of GIS tools at Region 1 has been facilitated through the Non Point Source-Forestry program, the Bay Protection and Toxic Cleanup Program, the Klamath Resource Information System (KRIS) database contract, and the development and implementation of the GEO Water Body System for Clean Water Act 305(b) Water Quality Assessment and 303(d) reporting.

Many kinds of information currently in use at the Regional Water Board are well suited to the kinds of analysis made possible by GIS. Some more familiar topics include: 1) the identification of sources of pollution, especially diffuse (non point) sources of pollution, through analysis of temporal and spatial data sets; 2) calculation of road density, coupled with predictive erosion potential estimates and prioritization of probable sources; 3) analysis of past, present and potential landslide areas; 4) assessment of trends in water temperature variations and analysis of their causes; 5) analysis of the singular and cumulative effects of water diversions on multiple other beneficial uses of water in the watershed; 6) studies of ground water contamination plumes, their sources, extent and interaction with surface waters, and; 7) the ability to integrate multiple issues within a watershed at one time. Rather than treating each issue individually, for example, site mitigation effects and studies of diffuse pollution can be integrated to both mitigate and protect resources. While existing program-focused database sets provide for some of these analyses to be performed now, the communication and prediction of effects of multiple aspects at the same time is best facilitated through GIS displays of relational database interactions.

Current Activity Staffing and Cost

Existing GIS resources represent a potentially powerful and cost-effective tool to assist State and Regional Board staff in implementing the Watershed Management Initiative and preparing TMDL's for impaired water bodies. If integrated, and minimally staffed with a stable funding source, the GIS systems could function as a clearinghouse of information for staff and clients of the Regional Board.

GeoWBS Program: The GIS-enhanced Water Body System database (GeoWBS) is designed to accomplish CWA Section 305 (b) assessment and Section 303 (d) reporting requirements. For the 2000 CWA Section 305 (b) water quality assessment update, the Regional Board has entered the 1998 CWA Section 303 (d) listed water bodies and water bodies from watersheds that are identified in the WMI Chapters for review this year into the GeoWBS system. In addition, the GeoWBS will be used for the next CWA Section 305(b) and 303 (d) updates and for on-going TMDL status reporting.

Unfunded activities and new activities

The RWQCB members of the ITSC GIS subcommittee need management support in terms of time and travel funding to complete the initial work of the committee in an expeditious manner.

The following recommendations are contained in an April 1999 report from the Office of Information Technology to Executive Office in a report "The Past, Present and Potential Use of a Geographic Information System At the State Water Resources Control Board and the Nine Regional Water Quality Control Boards":

Identify a position at each RWQCB and in the Divisions of Water Quality, Water Rights and Clean Water Programs that is the GIS Coordinator (or similar title) for that organization. Just as each organization within the Board system has identified and filled at least one position to provide technical support for operation of the organization's local area network, an identified GIS position will be needed. In the near term, a full-time position may not be necessary in all organizations but there should be recognition that this workload will grow and staff with the appropriate technical skills will be required. Designation of a staff person as the GIS Coordinator will begin the process of building the necessary skills to make this technology work effectively. Appropriate training can then be identified based on each organization's use of GIS technology.

Authorize Examinations for appropriate classifications for GIS staff. Both RWQCB 2 and the Division of Water Rights have recently had difficulty retaining or promoting trained GIS staff. Part of this difficulty stems from the fact that the Boards have not previously made use of the classifications designed for GIS professional staff. The Division of Administrative Services should be directed to include examinations for Research Analyst I and II (GIS) as well as Research Program Specialist I (GIS) as early as possible or in the next fiscal year examination schedule.

APPENDIX D

NONPOINT SOURCE TABLES

The tables presented in this appendix are tabularized information repeated from each individual WMA in a program-oriented format. The intent is to provide the information for quick reference outside the narrative style of the WMA sections.

A summary of NPS problems in general is presented below. A summary of water quality assessment in terms of geographical areas and NPS categories can be found in Tables 1 and 1A.

- Projected changes in land use in the North Coast Region include an increase in land devoted to vineyards and a decrease in land devoted to orchards and grazing. The Region now has a full-time staff person working directly on hillside vineyard issues.
- Timber harvest reviews in the Region will be with greater awareness of NPS environmental concerns such as erosion control and maintenance of riparian habitat. In order to meet this challenge, the staff of the Timber Harvest Division has tripled and is actively reviewing and inspecting all Timber Harvest Plans near streams.
- The population in the Region continues to grow, especially in the southern part of the Region in the Santa Rosa Plain. This will necessitate an enhanced vigilance by the Regional Board staff over waste discharge and storm water runoff. The Region plans, as a pilot project in the Russian River WMA, to create a monitoring consortium of all dischargers, agencies and local monitoring efforts to keep track of water quality.
- The largest single pollutant on an areal basis is excess sediment. Increased water temperatures from insults to the riparian corridor follow as a close second, and nutrient enrichment, while severe in some areas, is third in areal extent.

Many waterbodies in the region are high quality waters with respect to water chemistry and conventional pollutants (when sedimentation and temperature problems are removed from the analysis). The Smith River is a jewel among north coast rivers and deserves special recognition and protection as outstanding quality. Other rivers of high quality that require protection include the Mad, Trinity, Eel, Russian, and a number of smaller coastal rivers.

The Klamath and Shasta Rivers, the Laguna de Santa Rosa, Stemple Creek, and Americano Creek are nutrient enriched from nonpoint sources to varying degrees. As resources permit, we are addressing those problems through outreach and special assessments to document extent of problems and sources.

Long-term goals to address NPS problems include the critical tool of assessment of the waterbodies to determine extent of problems and quantify sources. Using the assessment information in an outreach program, we strive to bring awareness to landowners about their part in reducing NPS pollution. This fostering of stewardship for the aquatic resource is complimented by an active grant program aimed at demonstration of practices to reduce NPS impacts and actual restoration of our waterbodies.

Specific short-term (1–5 years) objectives for each Watershed Management Area come from the individual WMA sections in this report and are repeated in Table 2.

California's Nonpoint Source (NPS) Pollution Control Program has been in effect since 1988. A key element of the Program is the "Three-Tiered Approach," through which self-determined implementation is favored, but more stringent regulatory authorities are utilized when necessary to achieve implementation. The NPS program is being upgraded to enhance efforts to protect water quality, and to conform with the Clean Water Act Section 319 (CWA 319) and Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). The lead State agencies for the NPS Program are the SWRCB, the nine RWQCBs and the California Coastal Commission. Our long-term goal is to "improve water quality by implementing

the management measures identified in the California Management Measures for Polluted Runoff Report (CAMMPR) by 2013.”

The State’s three-tiered approach for progressive compliance and attainment of receiving water beneficial use protection from Nonpoint Source (NPS) pollution involves:

1. Voluntary Implementation of Best Management Practices (Tier 1)

Tier 1 is the first and most informal level of Regional Board and/or Regional Board staff involvement. At the Tier 1 level, the discharger is expected to voluntarily identify and implement Best Management Practices (BMPs) that are intended to eliminate and/or prevent NPS pollution without threat of regulatory action. Encouragement and voluntary compliance incentives are promoted through informal staff inspections, education, training, technical assistance, funding, and demonstration projects.

2. Regulatory-based Encouragement of Best Management Practices (Tier 2)

At the Tier 2 level, the Regional Board, and Regional Board staff essentially withhold direct regulatory action (like issuance of Waste Discharge Requirements [WDRs]) provided the discharger implements appropriate BMPs that are necessary to prevent NPS pollution. A formalization of this approach can be a waiver of WDRs or entering into a management agency agreement, wherein the Regional Board and discharger or responsible agency agree on actions.

3. Effluent Limitations (Tier 3)

The Tier 3 level is a direct regulatory approach that may include issuance of NPDES Stormwater Permits, Regional Board adoption of Total Maximum Daily Load and Attainment Strategy Plans (Basin Plan revision), WDRs, or enforcement orders containing specific effluent limitations necessary to protect the beneficial uses of the receiving waters. Tier 3 places the discharger under formal regulation with routine inspections, discharger self-monitoring and reporting programs, and enforcement mechanisms in the event of non-compliance.

The North Coast Region has an established NPS policy in its Water Quality Control Plan (Basin Plan) in Section 4: Implementation Plans. In general, the policy is to promote the voluntary implementation of best management practices and remedial projects in a three tiered approach: 1) self-determined implementation, 2) regulatory-based encouragement, and 3) effluent limitations. At the present time two action plans are contained in the NPS policy: 1) Action Plan for Logging, Construction and Associated Actions, and 2) Action Plan for Control of Discharges of Herbicide Wastes from Silvicultural Applications.

The North Coast Region has used the three tiered approach for many years and has been successful in promoting compliance through self-determined actions by dischargers. Our watershed partnership approach with animal facility operations (AFOs), including the dairy industry in the Russian/Bodega WMA is an exemplary demonstration of how the North Coast Region has implemented the three tier approach:

TIER 1

For the last two decades Regional Board staff (in cooperation with educational and technical assistance agencies) has nurtured a working relationship of trust with AFOs to educate and promote the development and implementation of BMPs necessary for water quality improvement and protection. Included in that outreach, technical assistance, and education effort is the grant program, where we directly oversee USEPA grants, promote and assist in obtaining other federal grant assistance (e.g., EQUIP, CRP), and promote local agency involvement in funding opportunities (City of Santa Rosa loan program). Regional Board staff also participates in a voluntary water quality monitoring program where ranchers, as a part of their ranch plan, monitor stormwater runoff with field test kits. The monitoring information, which is recorded and retained in each rancher’s ranch plan, is utilized to assess the success of implemented BMPs. Acceptable monitoring results provide positive feed back to the rancher that the BMPs implemented are effective. Unacceptable monitoring results provide the rancher with the knowledge that additional or modified BMPs need to be developed and implemented.

The first significant step for a discharger to indicate that voluntary compliance is intended is for their development of a farm or ranch plan that identifies site-specific Best Management Practices (BMPs) with an implementation schedule. The “voluntary” monitoring elements of the implemented ranch plan also provide the discharger with a means of continued compliance assessment.

TIER 2

The Sonoma/Marin Farm Bureau’s Animal Resource Management Committee is composed of ranchers, industry representatives, private consultants, and educational, technical assistance and regulatory agencies. The Committee oversees the broad issue of management practices for water quality protection. It is a self-policing organization that addresses and responds to water quality issues, pulling in agency assistance as needed. Should Regional Board staff or the Department Fish and Game observe or become aware of an undesirable practice, the matter is referred to the Committee for correction. Permitting the Committee the opportunity to seek compliance in a non-confrontational manner has been highly effective.

Encouragement can also include progressive Regional Board and Regional Board staff enforcement, from informal staff contact to formal Regional Board enforcement actions that can include development of time schedules for compliance and monetary penalties.

TIER 3

If the regulatory agencies observe a blatant disregard for water quality protection, they can choose to go directly to enforcement without first going through the Committee. The desired route, however, is to for industry to have the opportunity to seek correction first. On occasion, if the Committee is not successful in bringing about compliance in a timely manner, formal regulatory agency enforcement action is supported by the Committee. When Regional Board staff do become involved, a phased regulatory approach is implemented, beginning with an initial site visit often accompanied by a representative of the Committee. If staff level enforcement is not effective, the matter is elevated to more formal enforcement, such as a Cleanup and Abatement Order.

Another example of our Three-tier approach is with county road erosion problems, where we first contact the county regarding a problem and work out an approach to resolution at the staff level. If timely actions are not forthcoming, we elevate the issue to more formal enforcement.

In the spirit of Tier 1, outreach and education is the main means of reaching the public and assisting them with compliance. Table 3 outlines these activities in the North Coast Region.

Table 4A is a list of targeted projects for potential funding from NPS implementation grants [CWA section 319(h)]. Table 4AA is a list of targeted projects for potential funding from NPS planning grants [CWA section 205(j)]. Table 4C lists potential projects for US Department of Agriculture, Natural Resources Conservation Service, Environmental Quality Incentives Program funding.

Table 6 is a list of key partners with the North Coast Region who share responsibility for specific water quality issues.

In addition, the staff at the Regional Board participate on several statewide efforts such as the California Biodiversity Council Workgroup, the Watershed Protection Council, the Anadromous Fisheries Council, the 401 Certification Group, the Urban Runoff Task Force, and the Storm Water Task Force. We also are involved in Section 7 consultations with the Army Corps of Engineers and local efforts to address NPS problems in the Humboldt Bay area, the Upper Klamath River, the Russian River, and coastal tributaries.

Table 7 outlines the North Coast Region’s priority NPS implementation activities for FY 2000-01 and resources that will be used to affect those priorities.

TABLE 1: North Coast Regional NPS Problems by Management Measure Category

Pollutant(s) impairing or threatening Beneficial Uses Arranged by Management Measure Category						
Watershed/waterbody	Agriculture	Silviculture	Urban	Marinas & Recreational Boating	Hydromodification	Wetlands & Vegetated Treatment Systems
Russian/Bodega WMA						
Estero Americano (692 ac)	Sediment/silt Nutrients				Sediment/silt	
Americano Creek (7 mi)	Nutrients					
Russian River (105mi)	Sediment/silt	Sediment/silt	Sediment/silt		Sediment/silt	Sediment/silt
Tomki Creek (18mi)	Sediment/silt	Sediment/silt				
Klamath WMA						
Klamath River (190mi)	Nutrients Organics/D.O.	Temperature	Organics/D.O.		Temperature	
Scott River (68mi)	Sediment/silt Temperature	Sediment/silt Temperature			Sediment/silt Temperature	Sediment/silt Temperature
Shasta River (52mi)	Organics/D.O. Temperature				Organics/D.O.	Temperature
<i>NORTH COAST RIVERS WMA</i>						
Navarro River Delta (20 ac)	Sediment/silt	Sediment/silt				
Albion River (14mi)		Sediment/silt				

		lt				
Big River (40 mi)		Sediment/silt				
Garcia River (35mi)	Temperature Sediment/silt	Temperature Sediment/silt			Temperature Sediment/silt	
Gualala River (35mi)	Sediment/silt	Sediment/silt				
Mattole River (56mi)	Sediment/silt	Sediment/silt Temperature			Sediment/silt	
Navarro River (25mi)	Sediment/silt Temperature	Sediment/silt Temperature	Sediment/silt		Sediment/silt Temperature	Sediment/silt Temperature
Noyo River (35mi)		Sediment/silt				
Ten Mile River (10mi)		Sediment/silt				
Humboldt Bay WMA						
Elk River (87mi)		Sediment/silt			Sediment/silt	
Freshwater Creek (73mi)		Sediment/silt			Sediment/silt	
Mad River (90mi)	Sediment/silt Turbidity	Sediment/silt Turbidity			Sediment/silt Turbidity	
Redwood Creek (65mi)	Sediment/silt	Sediment/silt				
Eel River WMA						

Eel River Delta (6350 ac)	Sediment/silt Temperature	Sediment/silt Temperature				
Eel River Middle Fork (64mi)	Sediment/silt Temperature	Sediment/silt Temperature				
Eel River Main Middle fork (1075mi)	Sediment/silt Temperature	Sediment/silt Temperature				
Eel River North Fork (41mi)		Sediment/silt				
Eel River South Fork (85mi)	Sediment/silt Temperature	Sediment/silt Temperature			Sediment/silt Temperature	
Eel River Upper Main Fork (1154mi)	Sediment/silt Temperature	Sediment/silt Temperature				
Van Duzen River (65mi)	Sediment/silt	Sediment/silt				
Trinity River WMA						
Trinity River (170mi)	Sediment/silt	Sediment/silt			Sediment/silt	
Trinity River South Fork (80mi)	Sediment/silt Temperature	Sediment/silt Temperature			Temperature	

Table 1A: North Coast Groundwater Impairments

REGION	WATER BODY NAME	HYDRO UNIT	CAUSES*	SIZE**	SOURCES*	SIZE**	TOTAL SIZE**
1	ALEXANDER VALLEY AREA	114.25	Oil and grease Priority organics	23 23	Lust/Leaking Undergrnd Stor. Tanks	23	23
1	ANDERSON VALLEY	1-190	Oil and grease Priority organics	5 5	Lust/Leaking Undergrnd Stor. Tanks Petroleum Activities Resource Extraction Spills	5 5 5 5	5
1	ANNAPOLIS OHLSON RANCH	1-490	Oil and grease	10	Lust/Leaking Undergrnd Stor. Tanks	10	10
1	BIG RIVER VALLEY	1-450	Oil and grease Priority organics	5 5	Lust/Leaking Undergrnd Stor. Tanks Spills	5 5	5
1	BODEGA BAY AREA	1-210	Oil and grease Petroleum/Gasoline Priority organics	5 5 5	Lust/Leaking Undergrnd Stor. Tanks Spills	5 5	5
1	CLOVERDALE AREA	114.25	Oil and grease Pesticides Priority organics	9 9 9	Lust/Leaking Undergrnd Stor. Tanks Spills	9 9	9
1	EEL RIVER VALLEY	1-100	Oil and grease Priority organics	0 0	Lust/Leaking Undergrnd Stor. Tanks Spills	120 120	120
1	EUREKA PLAIN	1-90	Oil and grease Priority organics	60 60	Land Disposal Landfills Lust/Leaking Undergrnd Stor. Tanks Petroleum Activities Resource Extraction Spills	60 60 60 60 60 60	60
1	FORT BRAGG TERRACE AREA	1-210	Oil and grease Priority organics	24 24	Lust/Leaking Undergrnd Stor. Tanks Spills	24 24	24
1	GARBERVILLE TOWN AREA	1-320	Oil and grease Priority organics	0 0	Lust/Leaking Undergrnd Stor. Tanks Spills	5 5	5
1	GUALALA RIVER VALLEY	1-470	Oil and grease Priority organics	5 5	Lust/Leaking Undergrnd Stor. Tanks	5	5
1	HEALDSBURG AREA	114.25	Oil and grease Priority organics	27 27	Lust/Leaking Undergrnd Stor. Tanks Spills	27 27	27
1	LEGGETT AREA	1000000	Oil and grease	2	Lust/Leaking Undergrnd Stor. Tanks	2	2

* Causes and Sources are not linked.

** "Size" refers to the affected size (square miles) of the water body and "Total Size" refers to the size of the entire water body.

Table 1A: North Coast Groundwater Impairments (cont'd)

REGION	WATER BODY NAME	HYDRO UNIT	CAUSES*	SIZE**	SOURCES*	SIZE**	TOTAL SIZE**
1	LITTLE LAKE VALLEY	1-130	Priority organics	2			
			Oil and grease	17	Lust/Leaking Undergrnd Stor. Tanks	17	17
			Priority organics	17	Spills	17	
1	LOWER RUSSIAN RIVER VALLEY	114.10	Oil and grease	9	Lust/Leaking Undergrnd Stor. Tanks	9	9
			Priority organics	9	Spills	9	
1	MAD RIVER VALLEY	1-80	Oil and grease	60	Lust/Leaking Undergrnd Stor. Tanks	60	60
			Priority organics	60	Spills	60	
1	MODOC PLATEAU PVA	1-240	Oil and grease	3000	Lust/Leaking Undergrnd Stor. Tanks	3000	3000
			Priority organics	3000	Petroleum Activities	3000	
					Resource Extraction	3000	
					Spills	3000	
1	SANTA ROSA PLAINS	114.22	Metals	96	Agriculture	96	96
			Nutrients	96	Lust/Leaking Undergrnd Stor. Tanks	96	
			Oil and grease	96	Petroleum Activities	96	
			Priority organics	96	Resource Extraction	96	
					Spills	96	
1	SHASTA VALLEY	1-40	Oil and grease	340	Lust/Leaking Undergrnd Stor. Tanks	340	340
			Pesticides	0	Petroleum Activities	340	
			Priority organics	0	Resource Extraction	340	
					Spills	340	
1	SMITH RIVER PLAIN	1-10	Pesticides	70	Agriculture	70	70
			Petroleum/Gasoline	70	Lust/Leaking Undergrnd Stor. Tanks	70	
			Priority organics	70	Spills	70	
1	UKIAH VALLEY	114.31	Metals	16	Lust/Leaking Undergrnd Stor. Tanks	16	16
			Priority organics	16	Petroleum Activities	16	
					Resource Extraction	16	
					Spills	16	
1	WEAVERVILLE AREA	1000000	Petroleum/Gasoline	2	Lust/Leaking Undergrnd Stor. Tanks	2	2
			Priority organics	2	Spills	2	
1	WINDSOR AREA	1000000	Metals	2	Lust/Leaking Undergrnd Stor. Tanks	2	2
			Oil and grease	2	Spills	2	
			Priority organics	2			

* Causes and Sources are not linked.

** "Size" refers to the affected size (square miles) of the water body and "Total Size" refers to the size of the entire water body.

Table 2. Short Term Objectives: Russian/Bodega WMA

State Fiscal Year

Objective	Goal Ref*	00-01	01-02	02-03	03-04	04-05	Management Measures
Outreach and enforcement to reduce discharges from hillside vineyards and other agricultural sites	1, 3, 4, 5	X**	X	X	?**	?	1A, E, G
Work with the local dairy industry to improve management practices.	1, 3, 4, 5	X	X	X	X	X	1B,C
Support the RCDs' efforts to address erosion and mass wasting (land slides) issues in the Stemple Creek watershed with outreach and grant assistance.	1, 3, 4	X	X	?	?	?	1A, E, G
Review timber harvest operations for control of sediment discharges.	1, 3, 4	X	X	X	X	X	2A-F, K
Continue in the restoration of portions of Santa Rosa Creek with issuance of waste discharge requirements for the Prince Trail project.	1, 3, 4	X	X				5.1, 5.3 6
Monitor for MTBE in lakes Sonoma and Mendocino	1	X	X				N/A
Monitor for toxic chemicals in water, sediment, and tissue (TSMP, SMW, xenobiotic estrogens)	1, 3, 4, 5	X	X	X	X	X	N/A
Outreach and enforcement for rural residential roads.	1, 3, 4, 5		?	?	?	?	N/A
Maintain the Regional Water Board and counties' individual waste disposal systems program and promote reasonable resolution of localized problems (e.g., evaluation of innovative systems and assess impact of failing septic systems in lower Russian River).	1, 2, 5	X	X	X	X	X	3.4
Promote the continuing development and application of best management practices for storage, treatment, and disposal of hazardous substances, storm water runoff, solid waste, dairy waste, municipal waste water, agricultural and industrial wastes.	1, 2, 3, 4, 5	X	X	X	X	X	1D, B 3.1, 3.2, 3.3
Establish a monitoring network in high risk/high use ground water areas.	2		?	?	?	?	N/A
Assess nonpoint source impacts of Sonoma County landfill on Stemple Creek.	1, 2, 3, 4		?	?			5.2
Promote habitat/riparian restoration in existing agricultural areas. Improve habitat conditions for anadromous fishes by assisting and coordinating with CDFG and local agencies in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation.	1, 3, 4, 5	X	X	X	X	X	1A, E 5.1, 5.2, 5.4A
Evaluate the sediment data collected by the US Geological Survey for the Russian River with respect to erosion and sedimentation issues and the anadromous fishery	3, 4	?					N/A

Evaluate and pursue methods for evaluating sediment sources (e.g., satellite imagery, aerial photography)	3, 4, 5	?	?	?			N/A
Support the development of a Budget Change Proposal requesting monitoring funds and pursue innovative approaches to funding and volunteer monitoring	1-7, 9	X	X				N/A
Promote awareness of the effects of increased erosion on channel morphology	3, 4	X	X	X	X	X	5.1-5.4 3.1A
Determine sources and extent of sedimentation in Cheney Gulch and refer concern to Sonoma County Planning Department or other responsible agency.	5, 9	?	?				1A, E 5.1, 5.2
Improve agency coordination regarding Bodega Harbor runoff issues and marina and dry dock operations; encourage the pursuit of a 205(j) grant.	5	?	?				3.1-3.3, 3.6 4.1-4.3
Review and inspect critical construction storm water permit holders.	1-7, 9	X	X	X	X	X	3.1-3.3, 3.5, 3.6

*Goals from the WMI Chapter section for the Russian/Bodega WMA

- GOAL 1: Protect surface water uses MUN, REC-1, REC-2
- GOAL 2: Protect and maintain ground water quality and quantity for the beneficial uses of domestic, municipal, agricultural, and industrial water supply uses
- GOAL 3: Protect/enhance coldwater fisheries
- GOAL 4: Protect/enhance warmwater fisheries
- GOAL 5: Protect aquatic life and public health in Bodega Harbor
- GOAL 6: Objectives attainment in the Laguna de Santa Rosa
- GOAL 7: Stemple Creek and Americano Creek Waste Reduction Strategies
- GOAL 8: Water Rights Coordination
- GOAL 9: Assessment of Salmon Creek and other tributaries

**2 X=This is funded or expected to be funded; ?=Funding unknown, we will do if we have funding

TABLE 2 – SHORT TERM OBJECTIVES: KLAMATH WMA

State Fiscal Year							
Objective	Goal Ref*	00-01	01-02	02-03	03-04	04-05	Management Measures
LOST RIVER Subwatershed							
Continue existing level of baseline water quality monitoring and investigation of pesticide and toxics issues	2, 3	***	?	?	?	?	1D, 2I
Increase staff interactions with BOR and National Wildlife Refuges to document and understand influences of Klamath Straits Drain discharges on downstream Klamath water quality and to address the issues of water quantity, conveyance, and timing issues in a manner that better protects water quality	2, 3		X**	X			5.1A
Increase staff interaction with ODEQ and TID on review of existing water quality objectives through the “TMDL” process and funding support for assessment of agricultural practices affecting water quality in Lost River and Tule Lake	3		X	X			1A, 1E, 1F
Continue existing level of CWA Section 319(h) grant programs for stream restoration on Clear Lake tributaries	1, 2	?	?	?			1G, 5.4A
UPPER KLAMATH Subwatershed							
Significantly increase staff interaction with PacifiCorp, BOR, Klamath Compact Commission, USFWS, and CDFG working towards understanding water conveyance and flow scheduling as relates to water quality factors in the FERC and SWRCB water rights licensing processes	1, 2, 3, 4		X	X	X		2L
Continue existing level of baseline monitoring, including Hydrolab stations in Oregon at JC Boyle and Keno with emphasis on documenting water quality as it flows from above Klamath Straits Drain into Copco reservoir	1, 2, 3, 4	?	?	?	?	?	N/A
Increase staff interactions with ODEQ on review of common bi-state water quality objectives through the “TMDL” program, including CA concerns regarding Klamath water quality meeting recreation standards	1, 2, 3, 4		X	X			N/A
Increase staff time spent interacting with USFWS for KRIS maintenance and use	1, 2, 3, 4	?	?	?	?	?	2L
Increase staff interaction with residents of Copco Reservoir regarding summertime nuisance conditions	2, 4	?	?	?	?	?	2L
Continue existing level of grant program for stream restoration work	1, 2, 3	?	?	?			5.4A
MIDDLE KLAMATH Subwatershed							
Increase level of CDF Review Team meetings and inspections	1, 4, 5	X	X	X	X	X	2A, 2B, 2E, 2K

Increase level of review of USFS Timber Sales	1, 4, 5	X	X	X	X	X	2A, 2B, 2E, 2K
Continue existing level of work with local community on sediment control in the upper Scott River watershed	1, 4, 5		?	?	?	?	1A, 1G, 1E, 2L
Continue existing level of forest herbicide application monitoring	1, 4, 5	X	X	X	X	X	2I
Continue existing grant program for stream restoration and nonpoint source control of agricultural, construction, and timberland in the Shasta, Scott, and Salmon rivers, concentrating on those issues which affect water temperature and habitat, such as riparian corridors, irrigation water discharges	1, 4, 5	?	?	?	?	?	1A, 1G, 1E, 2L, 5.4A
Increase staff interaction with USFWS and CDFG towards determining specific temperature needs for fish in the mainstem below Iron Gate dam and in the Shasta and Scott rivers using the FERC process to ensure adequate flows for migration and temperature maintenance	1, 4, 5		X	X	X		2L
Review grazing permits and practices for water quality compliance	1, 4, 5	?	?	?	?	?	1E
Increase baseline water quality monitoring	1, 4, 5	?	?	?	?	?	N/A
Continue existing level of staff interaction with local watershed groups towards developing TMDLs in designated sub-basins	1, 4, 5	X	X	X	X	X	2L
LOWER KLAMATH Subwatershed							
Increase level of CDF Review Team meetings and inspections	1, 3, 4	X	X	X	X	X	2A, 2B, 2K
Increase level of review of USFS Timber Sales	1, 3, 4	X	X	X	X	X	2A, 2B, 2K
Increase staff interaction with private timber companies to develop long-term water quality monitoring programs	1, 3, 4	X	X				2L
Continue existing level of forest herbicide application monitoring	1, 3, 4	X	X	X	X	X	2K
Foster adaptive management based on water quality findings	1, 3, 4	X	X	X	X	X	N/A
Develop and maintain additional monitoring stations downstream of Orleans	1, 3, 4	?	?	?	?	?	N/A

*Goals from the WMI Chapter section for the Klamath WMA

- Goal 1: Protect and enhance the salmonid fishery (Mainstem and tributaries below Iron Gate)
- Goal 2: Protect and enhance warmwater and endangered aquatic species
- Goal 3: Maintain the viability of agriculture and timber uses
- Goal 4: Maintain recreational opportunities
- Goal 5: Protect groundwater uses

** X = This is funded or expected to be funded; ? = Funding unknown, we will do if we have funding

TABLE 2 – Short Term Objectives: Garcia River Watershed

State Fiscal Year							
Objective	Goal Ref*	00-01	01-02	02-03	03-04	04-05	Management Measures
CURRENT ACTIVITIES							
Participate in the THP review team and preharvest inspections	1,3	X**	X	X	X	X	2A
Review and comment on SYPs and HCPs to ensure consistency with TMDL	1,3	X	X	X	X	X	2A
Provide outreach and education to local landowners	1,3	?	?	?	?	?	2I, 5.4A
Promote grants for restoration (319(h), CDFG)	1,3	X	X	X	X	X	5.4A
Review existing temperature data and collect more to fill data gaps	1,3	?**	?	?			2B
List segments for temperature exceedances on CWA Section 303(d) list	1,3		?	?			2B
Review compliance with the TMDL	1,3			X			N/A
Enforce on violations of the Basin Plan and/or TMDL	1,3	X	X	X	X	X	N/A
Stay involved in and promote riparian and channel morphology considerations in the Section 404 permit process and CDFG 1603 process	1, 3	X	X	X	X	X	5.1B
Inventory landowner and county road problems	1, 3	?	?	?			2D
Promote outcropping and rolling dips for roads in the WMA	1, 3	X	X	X	X	X	2C
Request Rangeland Management Plans from ranchers	1,3	X	X	X			1E
Promote specific implementation plans in the TMDL to address identified sources	1,3	X	X	X	X	X	N/A
Implement upslope erosion controls	1,3	L**	L	L	L	L	1A, 2A
Manage and maintain properly functioning riparian zone (may include promoting late seral stage coniferous vegetation)	1,3	L	L	L	L	L	5.1B, 2B
Keep channel profile, plan, and dimension appropriate for the valley type and slope	1,3	L	L	L	L	L	5.1A
Promote a “no cut” zone with conifers as a component of the vegetation	1,3	X	X	X	X	X	2B
Encourage bridges instead of culverts on fish-bearing streams	1,3	X	X	X	X	X	2A
Work with the Mendocino County Health Department to educate users of agricultural and residential storage tanks on pollution prevention	2	?	?				N/A
ADDITIONAL NEEDS							
Identify erosion and sediment sources and potential sources	1,3	L	L	L	L	L	2A
Implement and monitor the Mendocino County Garcia River Gravel Management Plan	1,3	?	?	?			5.1A, 5.1B
Review effectiveness of current enhancement projects	1,3	X					2K

Monitor, assess, and review areas needing work and determine best option	1,3		?	?	?	?	2K
Encourage maintenance of adequate stream flows	1,3	X	X	X	X	X	2B
Enhance estuary conditions per the enhancement plan	1,3		?	?	?	?	6B
Consider effects of off-stream water supply pits and channel stability and discourage direct diversion for road watering/dust control	1,3		?	?	?	?	2A, 5.1A

*Goals from WMI Chapter for the Garcia River Watershed

- GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)
- GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses
- GOAL 3: Protect all other surface water uses

** X = This is funded or expected to be funded; ? = Funding unknown, we will do if we have funding
L = Landowner responsibility under the TMDL

TABLE 2 – SHORT TERM OBJECTIVES: GUALALA RIVER WATERSHED

Objective	Goal Ref*	State Fiscal Year					Management Measures
		00-01	01-02	02-03	03-04	04-05	
Monitor to determine the effectiveness of management practices to reduce erosion and sedimentation	1	X**	X	?	?	?	1A, 2
Assess bacterial quality in two high use recreation areas	3	?	?				4.2A & C
Education and outreach to improve the recognition of land use impacts on the aquatic environment from nonpoint sources	1,3	X	X				2L, 3.6A
Coordinate through the GRWC on a monthly basis, and with other entities as needed	1,2,3	X	X				1G, 2L, 3.6A, 5.4A
Investigate ground water petroleum contamination	2	X					N/A
Continue involvement in grant programs for NPS and fisheries	1	X	X	X	X	X	5.4A
Continue involvement in forestry, grazing, and county road issues	1,3	X	X	X	X	X	2A,B,C,D,E,F,H,K,L

*Goals from the WMI Chapter for the Gualala River Watershed

- GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE)
- GOAL 2: Protect and enhance ground water resources and attendant high beneficial uses
- GOAL 3: Protect all other surface water uses

** X = This is funded or expected to be funded; ? = Funding unknown, we will do if we have funding

TABLE 2 – SHORT TERM OBJECTIVES: HUMBOLDT BAY WMA

State Fiscal Year							
Objective	Goal Ref*	00-01	01-02	02-03	03-04	04-05	Management Measures
CURRENT ACTIVITIES							
Review timber landowners’ Sustained Yield Plans and Habitat Conservation Plans for protection of beneficial uses.	1	X**	X	X	X	X	2A
Maintain an active timber harvest review program and promote enforcement actions on violations	1	X	X	X	X	X	2A
Impose penalties on animal facilities with repeated non-compliance	1	?**	?	?	?	?	1B
Continue active participation in Vegetation Management Advisory Committee (CalTrans) and assist CalTrans in the development of a study of herbicide runoff from highway spraying operations	1	X	X	X	X	X	1D, 3.5D
Promote watershed analysis of Humboldt Bay tributaries within the scope of the Pacific Lumber Company Habitat Conservation Plan	1, 4	X	X	X	X	X	2A
Identify sources of existing ground water information, including other agencies and local groups	2	?	?				N/A
Participate in local outreach programs, such as the Humboldt Bay Symposium, and share hosting duties with other agencies for watershed group and special topic meetings to provide information and to receive input from agencies and the public	2	?	?				1G, 2L, 3.6A
Provide information for accessing 319(h) grant funds for the agricultural, timber and urban/rural communities. Ensure that the funds can be easily accessed by the agricultural community.	2, 4	X	X	X	X	X	1G, 2I, 3.6A
Continue involvement with local efforts to coordinate monitoring	3	X	X	X	X	X	1G, 2L, 3.6A
Enhance the existing monitoring activities by volunteers	3	?	?	?	?	?	
Maintain involvement in the gravel bar mining, especially as relates to channel stability.	4	X	X	X	X	X	5.1 A & B
Support and encourage the Humboldt Shellfish Technical Advisory Committee to provide coordination with agencies and a forum for the development of any needed water quality investigations or monitoring	5	X	X	X	X	X	4.1A
Continue investigations at the Eureka Waterfront area to eliminate petroleum, metals, and organic chemical pollution and threats	5	X	X	X	X	X	4.1A
Continue review of land use practices within the	5	?			?	?	1A, 1D, 2E,

Humboldt Bay Watershed to ameliorate impacts from runoff sources, including, but not limited to timber harvest, pesticide use, urban, industrial and agricultural runoff, and individual waste disposal systems (septic tanks).			?	?			2I, 3.4B
ADDITIONAL NEEDS							
Seek funding to improve interagency coordination to assist with identification of problem areas, conduct outreach programs and coordinate enforcement activities for erosion control	1	?	?	?	?	?	1G, 2L
Encourage local agencies to adopt and enforce local ordinances for erosion control	1	?	?	?	?	?	1A
Conduct community education and outreach programs to inform the public and private industries of good management practices and the potential for harmful (and toxic) effects if these practices are not implemented	1	?	?	?	?	?	1G
Perform watershed assessments, including bacterial sampling	1	?	?	?	?	?	N/A
Follow up on MTBE detections at Ruth Lake, Mad River watershed	1	?	?	?	?	?	N/A
Require regular monitoring of water quality at nonpoint source facility discharge points.	1	?	?	?	?	?	N/A
Seek additional funding for regulatory oversight of investigations and cleanups along the waterfront through cost recovery programs and brownfields grants	1	X	X	X	X	X	N/A
Require regular monitoring of nearby surface water bodies in association with the application of herbicides	1	?	?	?	?	?	1D, 2I
Seek increased funding to conduct inspections and water quality monitoring	1	X	X	X	X	X	N/A
Pursue additional Regional Water Board funding (PYs) to identify ground water monitoring needs in the WMA and to coordinate with other agencies on a watershed basis	2	X	X	X	X	X	N/A
Pursue additional Regional Water Board funding (PYs) to conduct nonpoint source inspections (and follow-up) and to investigate non-point source problems, and develop a task force to target problem areas or problem management practices	2	X	X	X	X	X	1A-G, 2L, 3.6, 4.3, 5.4, 6D
Pursue additional Regional Water Board funding (PYs) to store, analyze, and assess existing information and to develop GIS support for the database and analysis of information	2	X	X	X	X	X	N/A
Increase coordination and cooperation with the RCDs and the agricultural community to deal	2, 5	?			?	?	1B, 1E, 1G

with rangeland and confined animal problems, and to advance to Title 27 requirements in order to avoid ground water contamination			?	?			
Prevent access and discharge to waste pits and ponds	2	X	X	X	X	X	N/A
Continue to coordinate with the county to review septic system situations to avoid ground water contamination. This includes enforcement of the Basin Plan requirement to ensure that the county reports septage disposal practices and trends	2	X	X	X	X	X	3.4B
A monitoring workshop should be held in the Humboldt Bay area to coordinate among private, public groups, HSU, Shellfish TAC and other agencies with the goal of standardizing monitoring to increase data exchange utility. The workshop should focus on coordinating data collection and analysis activities in the WMA, standardization of monitoring protocols, and volunteer monitoring efforts	3	?	?	?	?	?	1B,1G, 2L, 3.6A, 4.1A
Coordinate assessment and monitoring activities with local agencies and groups	3	?	?	?	?	?	1G, 2L, 3.6A
Assist groups wishing to do volunteer monitoring	3	?	?	?	?	?	1G, 2L, 3.6A
Seek funding for a local Database/GIS System and coordinator	3	X	X	X	X	X	N/A
Identify opportunities for redirection of staff resources into additional assessment and monitoring functions. Additionally, seek out funding to support increasing assessment and monitoring activities in the WMA	3	X	X	X	X	X	N/A
Public education and outreach should be increased, and focus on our role in these specific areas: placing educational handouts at local permit offices, develop a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation, and erosion control for small and rural landowners. Support and promote educational opportunities for permitting, erosion control, wetlands values, and aquatic habitat restoration, develop a matrix of agencies and responsibilities to distribute at local permit centers, and promote involvement in the California Resources Agency's World Wide Web informational and educational activities. Tax incentives for erosion control and aquatic restoration activities should be supported and pursued. Decreasing road density on upland slopes and decommissioning problem roads were	1, 2, 3, 4	?	?	?	?	?	1G, 2L, 3.6A, 5.4A, 5.3A

two potential targets of such an incentive program							
Utilize Water Quality Attainment Strategies (“TMDL”) for reduction of erosion and sedimentation and to improve water temperatures, to assist in the collection of information, and to provide assessments in the initial stages, and to generate additional information through monitoring into the future	3	?	?	?	?	?	1A, 2
Look at restoration projects from the standpoints of utility (did they work) and effectiveness (cost/benefit, ease) on a broad basis.	3	?	?	?	?	?	N/A
Obtain dredging records to assist in the assessment of the quantity of upslope erosion and describing the linkage between numerous small upland or upslope activities and larger problems downstream in the waterways	3	?	?	?	?	?	5.1A & B
Seek additional funding for staff and laboratory services to inspect and monitor water quality	3	X	X	X	X	X	N/A
Address Clean Water Act Section 303(d) - The Mad River, Redwood Creek, Freshwater Creek and Elk River are listed for sediment impairments to the anadromous fish resources. Other waterbodies may be listed in the future. The process to establish sediment reduction strategies will involve considerable public outreach, assessment of sources, assessment of impairments, development of quantifiable targets, consideration of feasible solutions to reduce sources, and coordinated monitoring	4	X	X	X	X	X	1G, 2L, 3.6A, 5.4A
Improve habitat conditions for anadromous fishes by assisting and coordinating with CDFG and local agencies and groups in fishery assessment and emerging issues and by promoting grant funding for stream rehabilitation and monitoring.	4	?	?	?	?	?	2L, 5.4A
Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups to improve its functions for shading, buffering land use impacts, bank stabilization, and habitat	4	X	X	X	X	X	5.4A, 2L, 1G, 6D
Support use of the State Mussel Watch Program within the Bay. Review and expand, if appropriate, the scope of the analyses to answer the question, “Are there chemicals in wide use that have not been monitored or assessed with the State Mussel Watch Program?”	5	?	?	?	?	?	4.1A
In cooperation with the Department of Health Services, Shellfish Program, explore pathogen	5	?	?	?	?	?	N/A

issues with University of California at Davis							
---	--	--	--	--	--	--	--

*Goals from the WMI Chapter section for the Humboldt Bay WMA

- GOAL 1: Protect surface water uses MUN, REC-1, REC-2, NAV, WILD, EST, MAR, MIGR, SPWN, SHELL
- GOAL 2: Protect ground water uses MUN, IND, AGR, REC-1, REC-2
- GOAL 3: Further and continued assessment and monitoring
- GOAL 4: Protect/enhance cold water fisheries
- GOAL 5: Protection of the commercial and recreational shellfish uses

** **X** = This is funded or expected to be funded; ? = Funding unknown, we will do if we have funding

TABLE 2 – SHORT TERM OBJECTIVES: EEL RIVER WMA

Objective	Goal Ref*	State Fiscal Year					Management Measures
		00-01	01-02	02-03	03-04	04-05	
CURRENT ACTIVITIES							
Develop strategies to implement and enforce best management practices for nonpoint source regulation. These actions include inspection of nonpoint source dischargers, joint participation among landowners, government agencies, and other stakeholders to develop and implement better land-use practices (including herbicide applications), and follow road construction and maintenance standards that minimize soil disturbance and erosion throughout the watershed.	1	X**	X	X	X	X	1D, 1G, 2I, 2L, 3.6A, 3.5B, 3.5D, 3.5F, 3.5E
Work more closely with the timber industry to address timber harvest impacts and issues (i.e., erosion, herbicides, riparian management). Work more closely with USFS regarding timber harvest related activities, including road building and road abandonment, in the upper Eel Basin.	1	X	X	X	X	X	2A,B,C,D,E,I
Investigate herbicide impacts to surface and ground water. Participate in Vegetation Management Advisory Committee.	1	?**	?	?	?	?	1D, 2I, 3.5D, 3.5F
Promote grants for nonpoint source studies and implementation	1	X	X	X	X	X	5.4A
Increase coordination with RCD and agricultural community to address rangeland issues and confined animal problems related to nutrient runoff and erosion (see p. 106 for details)	1, 2	X	X	X	X	X	1B, 1E, 1G
Continue on-going activities associated with known ground water contamination	3	X	X	X	X	X	N/A
Prevent access to waste pits and ponds.	3	X	X	X	X	X	N/A
Coordinate with the counties on septic system situations and reporting on septage disposal.	3	X	X	X	X	X	3.4B
Refer follow up on the issue of fish consumption to the Office of Health and Hazard Assessment for potential health advisory posting	4	COMPLETE					N/A
ADDITIONAL NEEDS							
Promote erosion control educational materials and programs for small and rural landowners. Place educational handouts at local permit offices and perform more outreach. Promote erosion control regulations. Meet with agencies responsible for issuance of permits to discuss their process and BMP's for water quality. Existing information needs to be identified so that we can assess impacts to the system and address problem areas.	1	?	?	?	?	?	1G, 2L, 3.6A, 5.4A, 6A
Compare new air photos with historical air photos and note changes in the morphology of channels. This will give us the locations of "hot spots".	1	?	?	?	?	?	1G, 2L, 3.6A, 3.5B, 3.5E

Develop a road map of groups/agencies responsible to assist an individual landowner in a given waterbody or type of problem or situation.	1	?	?	?	?	?	1G, 2L, 3.6A, 5.4A,6A
Inspect construction sites for erosion controls, encourage local agencies to adopt and enforce local ordinances for erosion control. Increase storm water program resources	1	?	?	?	?	?	3.2A, 3.2B, 5.4A
Fund PYs for coordinating our functions with other agencies on a watershed basis.	1	?	?	?	?	?	1G, 2L, 3.6A, 3.5B, 3.5E
Improve water quality assessment and monitoring activities. (See p. _ for details)	1	?	?	?	?	?	N/A
Tax incentives for erosion control and aquatic restoration activities should be supported and pursued. Decreasing road density on upland slopes and decommissioning problem roads were two potential targets of such an incentive program.	1	?	?	?	?	?	N/A
Promote enhancement of riparian areas through grant funding, public education and outreach, and coordination and assistance to other agencies and groups to improve riparian functions for shading, buffering land use impacts, bank stabilization, and habitat	1	?	?	?	?	?	1G, 2L, 5.4A
Improve habitat conditions for anadromous fishes by assisting and coordinating with CDF&G and local agencies and groups. (See p. _ for details.)	1	?	?	?	?	?	5.1A, 5.4A
Coordinate water rights/dams issues with SWRCB and other agencies.	1	?	?	?	?	?	N/A
Staff should be part of the process and decision criteria regarding amounts, locations, and seasonality of gravel extractions	1	?	?	?	?	?	5.1A, 5.1B
Encourage the local planning agencies to endorse the concept of a riparian corridor reserve and develop a model erosion control ordinance for all grading and building projects less than 5 acres in size due to the sensitive nature of the watershed. Coordinate with local agencies, CalTrans, and the Railroad Authority to develop and implement best management practices for erosion control.	1	?	?	?	?	?	1A, 3.1, 3.5A
Develop and implement a focused sampling program for temperature, sediment loading, geomorphology changes and water quality in upper mainstem Eel River.	1, 2	?	?	?	?	?	N/A
Support CDFG efforts to identify the extent of squawfish predation on salmon and steelhead populations and evaluate management strategies to eliminate squawfish predation and/or population within the river and Lake Pillsbury.	1	X	X	X	X	X	N/A
Increase staff priority to develop general permits for agricultural activities	2	?	?	?	?	?	N/A
Investigate the feasibility and impacts to beneficial uses if Eel River estuary and lower mainstem are dredged to remove well documented sediment	2	?	?	?	?	?	5.1A

clogging in watershed.							
Streamline 401 water quality certification program for small dischargers and encourage better use of existing BMP's for erosion.	2	X	X	X	X	X	N/A
Establish and fund an Eel River watershed coordinator position to develop outreach programs that include joint participation among landowner, government agencies and other stakeholders.	2	?	?	?	?	?	1G, 2L, 5.4A
Prepare, develop, and implement a program to educate the public, local, city, and state Agencies, along with private industry, on discharges of toxic chemicals.	3	?	?	?	?	?	1G, 2L, 3.6A

*Goals from the WMI Chapter section for the Eel River WMA

- Goal 1: Protect and enhance the salmonid resources (COLD)
- Goal 2: Protect other surface water uses (MUN, AGR, REC 1, REC-2)
- Goal 3: Protect ground water uses (MUN, IND. AGR, REC-1, REC-2)

Goal 4. Protect warmwater fishery resources

** X = this is funded or expected to be funded; ? = Funding unknown, we will do if we have funding

TABLE 3: Education, Outreach, and Technical Assistance**Watershed: Russian/Bodega Watershed Management Area**

Target Audience	Education/Outreach/ Assistance Goals	Product(s)	Staff or Contract	Management Measure Category	Target Year	Funding Available
Growers, landowners	<ul style="list-style-type: none">• Reduce discharges from hillside vineyards and other agricultural sites	<ul style="list-style-type: none">• Reduced erosion and sedimentation• Reduced nutrient discharges	Staff	1A, 1E, 1G	00-03	YES
Local dairy industry	<ul style="list-style-type: none">• Improve management practices	<ul style="list-style-type: none">• Reduced erosion and sedimentation• Reduced nutrient discharges	Staff	1B, 1C	00-05	YES
Rural residential road owners	<ul style="list-style-type: none">• Road restoration/retirement and repairs	<ul style="list-style-type: none">• Reduced erosion and sedimentation• Improve anadromous fish habitat	Staff	Various	?	NO
Agricultural producers	<ul style="list-style-type: none">• Promote habitat/riparian restoration in existing agricultural areas• Fishery assessment• Promote grant	<ul style="list-style-type: none">• Improve habitat conditions for anadromous fishes	Staff	1A, 1E, 5.1, 5.2, 5.4A	00-05	YES

	funding for stream rehabilitation					
Landowners	<ul style="list-style-type: none"> Promote awareness of the effects of increased erosion on channel morphology 	<ul style="list-style-type: none"> Enhanced salmonid habitat 	Staff	5.1 - 5.4, 3.1A	00-05	YES
Other agencies	<ul style="list-style-type: none"> Improve agency coordination regarding Bodega Harbor runoff issues and marina and dry dock operations Encourage the pursuit of a 205(j) grant. 	<ul style="list-style-type: none"> Improve water quality in Bodega Bay 	Staff	3.1-3.3, 3.6, 4.1-4.3	?	No

TABLE 3: Education, Outreach, and Technical Assistance**Watershed: Klamath Watershed Management Area**

Target Audience	Education/Outreach/ Assistance Goals	Product(s)	Staff or Contract	Management Measure Category	Target Year	Funding Available
LOST RIVER Subwatershed						
Watershed groups, non-profits	CWA 104, 205(j), 319(h) and Fish and Game 271 grants	Grant projects for control of tailwater	Staff	1F, 1C, 1G, 5.4A, 6D	Ongoing	Yes
UPPER KLAMATH Subwatershed						
Watershed groups, non-profits	CWA 104, 205(j), 319(h) and Fish and Game 271 grants	Grant projects	Staff	5.4A	Ongoing	Yes
MIDDLE KLAMATH Subwatershed (including Scott and Shasta Rivers)						
Local community	Promote assessment and restoration activities	Sediment control in the upper Scott River watershed	Staff	1A, 1G, 1E, 2L	01-02	No
Watershed groups, nonprofits	CWA 104, 205(j), 319(h) and Fish and Game 271 grants	Grant projects for nonpoint source control of agricultural, construction, and timberland in the Shasta, Scott, and Salmon rivers	Staff	1A, 1G, 1E, 2L, 5.4A	Ongoing	No
Watershed groups, nonprofits	Attend watershed group meetings	Development of TMDLs in designated sub- basins	Staff	2L	00-05	Yes

LOWER KLAMATH Subwatershed						
Timber companies	Foster long-term water quality monitoring	Monitoring data and water quality trends	Staff	2L	00-02	Yes

Timber companies	Foster long-term water quality monitoring	Monitoring data and water quality trends	Staff	2L	00-02	Yes
------------------	---	--	-------	----	-------	-----

TABLE 3: Education, Outreach, and Technical Assistance**Watershed: Garcia River Watershed**

Target Audience	Education/Outreach/ Assistance Goals	Product(s)	Staff or Contract	Management Measure Category	Target Year	Funding Available
Local landowners	<ul style="list-style-type: none">• Increase awareness of nonpoint source pollution	<ul style="list-style-type: none">• Enhance anadromous fish resources	Staff	2I, 5.4A	?	No
Watershed groups, nonprofits, agencies	<ul style="list-style-type: none">• CWA 104, 205(j), 319(h) and fish and Game 271 grants	<ul style="list-style-type: none">• Grant projects	Staff	5.4A	Ongoing	YES
Ranchers	<ul style="list-style-type: none">• Rangeland Water Quality Management Plans	<ul style="list-style-type: none">• Reduced erosion, sedimentation and nutrient delivery to surface waters	Staff	1E	00-03	YES
Users of agricultural and residential storage tanks	<ul style="list-style-type: none">• Education through the Mendocino County Health Department	<ul style="list-style-type: none">• Prevent pollution from storage tanks	Staff	N/A	?	No

TABLE 3: Education, Outreach, and Technical Assistance**Watershed: Gualala River Watershed**

Target Audience	Education/Outreach/ Assistance Goals	Product(s)	Staff or Contract	Management Measure Category	Target Year	Funding Available
Landowners, watershed groups	<ul style="list-style-type: none">• Recognition of land use impacts on the aquatic environment from nonpoint sources	<ul style="list-style-type: none">• Improved anadromous fish habitat• Reduction in erosion and sedimentation	Staff	2L, 3.6A	00-02	Yes
Watershed groups, nonprofits, agencies	<ul style="list-style-type: none">• CWA 104, 205(j), 319(h) and Fish and Game 271 grants	<ul style="list-style-type: none">• Grant projects• Improved anadromous fish habitat	Staff	5.4A	Ongoing	YES
Gualala River Watershed Council	<ul style="list-style-type: none">• Attend meetings• Consult with other entities and agencies	<ul style="list-style-type: none">• Stakeholder involvement	Staff	1G, 2L, 3.6A, 5.4A	Ongoing	YES

TABLE 3: Education, Outreach, and Technical Assistance**Watershed: Humboldt Watershed Management Area**

Target Audience	Education/Outreach/ Assistance Goals	Product(s)	Staff or Contract	Management Measure Category	Target Year	Funding Available
Agencies, Watershed groups, public	<ul style="list-style-type: none">• Provide information• Receive input from agencies and the public	<ul style="list-style-type: none">• Interagency coordination• Stakeholder involvement	Staff	1G, 2L, 3.6A	00-02	NO
Landowners: agricultural community	<ul style="list-style-type: none">• CWA 104, 205(j), 319(h) and Fish and Game 271 grants	<ul style="list-style-type: none">• Grant projects	Staff	1G, 2L, 3.6A	00-05	YES
Local watershed groups	<ul style="list-style-type: none">• Coordination of volunteer monitoring	<ul style="list-style-type: none">• Monitoring data	Staff	1G, 2L, 3.6A	00-05	YES
Agricultural and timber industries and urban dwellers	<ul style="list-style-type: none">• Better understanding of cold water fisheries needs	<ul style="list-style-type: none">• Improved anadromous fish habitat	Staff	1G, 2L, 3.6A	?	NO
The public and private industries	<ul style="list-style-type: none">• Provide information on good management practices	<ul style="list-style-type: none">• Protection of surface water beneficial uses• Erosion control	Staff	1G, 2L	?	NO
Cattle producers	<ul style="list-style-type: none">• Promote good management practices• Implement the California Rangeland Water	<ul style="list-style-type: none">• Reduce erosion• Reduce nonpoint source waste discharge	Staff	1G, 1E	?	NO

	Quality Management Plan					
The public, local, city, state agencies, private industry	<ul style="list-style-type: none"> • Educational program 	<ul style="list-style-type: none"> • Prevention of toxic discharges to ground water 	Staff	1G	?	NO
Confined animal facilities, rangeland owners, RCDs	<ul style="list-style-type: none"> • Foster cooperation and coordination • Educational meetings 	<ul style="list-style-type: none"> • Avoid ground water contamination 	Staff	1B, 1E, 1G	?	NO
The public and agencies	<ul style="list-style-type: none"> • Promote use of wastes at agronomic rates • Promote the Rangeland Water Quality Management Plan • Increase interagency coordination 	<ul style="list-style-type: none"> • Proper disposal of nonpoint source wastes 	Staff	1G, 1C, 1E, 3.6A	?	NO
Private, public groups, HSU, and other agencies	<ul style="list-style-type: none"> • Monitoring workshop 	<ul style="list-style-type: none"> • Data exchange • Standardization of monitoring protocols • Standardization of volunteer monitoring • Coordinating data collection and analysis 	Staff	1B, 1G, 2L, 3.6A, 4.1A	?	NO
Watershed groups	<ul style="list-style-type: none"> • Watershed assessment • Obtain monitoring 	<ul style="list-style-type: none"> • Watershed Plans • Trends in water 	Staff	1G, 2L, 3.6A	?	NO

	data	quality and habitat trends				
The public, small and rural landowners	<ul style="list-style-type: none"> • Placing educational handouts at local permit offices • Develop a road map of groups/agencies responsible to assist an individual landowner • Erosion control for small and rural landowners • Develop a matrix of agencies and responsibilities to distribute at local permit centers 	<ul style="list-style-type: none"> • Educational materials and opportunities for permitting, erosion control, wetlands values, and aquatic habitat restoration • Enhanced cold water fisheries • Increased assessment and monitoring 	Staff	1A, 1G, 2L, 5.4A, 5.3A	?	NO
Landowners, construction, silviculture, agriculture industries	<ul style="list-style-type: none"> • Reduce nutrient, sediment, and chemical discharges from nonpoint sources. 	<ul style="list-style-type: none"> • Enforce best management practices for nonpoint source regulation 	Staff	1G, 2L, 3.6A, 5.4A	?	NO
Landowners	<ul style="list-style-type: none"> • Assessment of sources, assessment of impairments, development of quantifiable targets, consideration of 	<ul style="list-style-type: none"> • Establish sediment reduction strategies 	Staff	1G, 2L, 3.6A, 5.4A	00-05	YES

	feasible solutions to reduce sources, and coordinated monitoring					
Watershed groups, other agencies	<ul style="list-style-type: none"> To improve riparian functions for shading, buffering land use impacts, bank stabilization, and habitat 	<ul style="list-style-type: none"> Enhancement of riparian areas 	Staff	5.4A, 2L, 1G, 6D	00-05	Yes

TABLE 3: Education, Outreach, and Technical Assistance**Watershed: Eel River Watershed Management Area**

Target Audience	Education/Outreach/ Assistance Goals	Product(s)	Staff or Contract	Management Measure Category	Target Year	Funding Available
Local Landowners in Eel and Van Duzen Rivers	<ul style="list-style-type: none">• TMDL requirements• Provide sediment reduction strategies (BMPs)	<ul style="list-style-type: none">• Guidance on BMPs	Staff	1G, 2L, 3.6A	?	NO
Local watershed groups, agencies, RCDs etc	<ul style="list-style-type: none">• CWA 104, 319(h) & 205(j) and Fish & Game 271 grants	<ul style="list-style-type: none">• Grant projects	Staff	5.4A	Ongoing	YES
Small and Rural landowners	<ul style="list-style-type: none">• Promote erosion controls	<ul style="list-style-type: none">• Educational handouts	Staff	1G, 2L, 3.6A,	?	NO
Public agencies, watershed groups, RCDs	<ul style="list-style-type: none">• Enhancement of riparian areas	<ul style="list-style-type: none">• Grant projects• Educational materials	Staff	1G, 2L, 3.6A 5.4A	00-05	YES
Watershed Groups	<ul style="list-style-type: none">• Seal waste pit and ponds• Education on BMPs	<ul style="list-style-type: none">• Host watershed group meetings• Implementation of Rangeland Management Planning process	Staff	1C, 1E, 1F, 1G	?	NO
Public, local, city, State agencies, and private industry	<ul style="list-style-type: none">• Reduce discharges of toxic chemicals	<ul style="list-style-type: none">• Educational program	Staff	1G 2L	?	NO

Table 4A. North Coast Region Targeted Projects for Potential Funding from NPS Implementation

Project Description	Geographic Location	Management Measures	WRAS Equivalent Documents
Monitoring to determine the effectiveness of management practices and activities to achieve TMDL sediment reduction targets	N. Coast Rivers WMA (Navarro River, Noyo River) Trinity WMA	5.1A, 5.1B, 5.3A	Navarro River Restoration Plan, Noyo River TMDL& Implementation Recommendations
Implementation of a program to reduce runoff discharges from residential, commercial, and industrial properties and improve stream habitat in a mixed cultural/Environmental Justice setting	Russian/Bodega WMA (Roseland Creek)	1E	Southwest Santa Rosa Area Plan
Riparian Revegetation, Channel Protection and Animal Exclusion Zones	Russian/ Bodega WMA (Stemple, & Americano Watersheds) N.Coast Rivers WMA (Garcia and Navarro Rivera)	1B, 1E, 5.3A, 6B	Stemple Creek Waste Reduction Strategy (TMDL) Navarro River Restoration Plan Garcia River Waste Reduction Strategy
Technology Transfer for Vineyard Installation, Educational Outreach	Russian/Bodega WMA N. Coast Rivers WMA (Gualala & Navarro rivers)	1A, 1G	Navarro River Restoration Plan
Laguna Wetland Corridor Restoration and Wetland Bank	Russian/Bodega WMA (Laguna de Santa Rosa)	6A, 6B	Waste Reduction Strategy for Laguna de Santa Rosa; Laguna CRMP
Technology Transfer for Construction Projects, Educational Outreach	Region wide	3.6A	
“Shrimp Club” type Education/Outreach	Region-wide	6D	
Wetland “polishing marsh” for stormwater runoff from Sebastopol	Russian/Bodega WMA (Laguna de Santa Rosa)	6B, 6C	Waste Reduction Strategy for Laguna de Santa Rosa; Laguna CRMP

Table 4A. North Coast Region Targeted Projects for Potential Funding from NPS Implementation

Stream restoration in watersheds where TMDLs are established or pending in the next five years	Region-wide*	5.1A, 5.1B, 5.3A, 6B	Waste Reduction Strategies are in place for established TMDLs
Road restoration, road retirement in watersheds where TMDLs are being established for sediment	Region-wide*	3.5A, 3.5E, 3.5F	Waste Reduction Strategies are in place for established TMDLs
Implementation of a volunteer monitoring network to establish baseline conditions and to track effectiveness of management measures and restoration projects	Region-wide	various	Scott Valley CRMP Shasta Valley CRMP Other already listed in this table: Navarro, Noyo, Stemple, Mattole, Garcia, Laguna de Santa Rosa, Greenwood
Stream restoration, road restoration/retirement or other erosion/sedimentation reduction activities	N. Coast Rivers WMA (Mattole River)	5.1A, 5.1B, 5.3A, 6B	Mattole Salmon Group Five Year Plan, Mattole Restoration Council Elements of Recovery
Improve high priority roads within the watershed	N Coast Rivers WMA (Greenwood Creek)	3.5A, 3.5E, 3.5F	Greenwood Creek Stream Survey: Data Analysis and Recommendations Greenwood Creek Watershed Project: 1996 Road Survey Summary Report
Inventory of roads (logging, rural, and residential) and needed road improvements	Eel River WMA	3.5A, 3.5E, 3.5F	
Inventory of roads (logging, rural, and residential) and needed road improvements	N. Coast Rivers WMA (Garcia, Noyo, Gualala, Albion, Big, Ten Mile, Navarro Rivers)	3.5A, 3.5E, 3.5F	Navarro River Restoration Plan Garcia River Waste Reduction Strategy Noyo River TMDL &

Table 4A. North Coast Region Targeted Projects for Potential Funding from NPS Implementation

			Implementation Recommendations
--	--	--	--------------------------------

*Established TMDLs: So. Fork Trinity River, Redwood Creek, Garcia River, Laguna de Santa Rosa, Stemple Creek, Noyo River, So. Fork Eel River, Van Duzen River

Pending TMDLs: Ten Mile River, Navarro River, Trinity River, Albion River, Gualala River, Big River, Mattole River, Eel River, Klamath River, Salmon River, Scott River, Shasta River

Table 4AA: North Coast Region Targeted Projects for Potential Funding from NPS Planning

Geographic Location	Project Description	Management Measures	Outcomes/Products
N. Coast Rivers WMA (Garcia River)	Temperature modeling to predict impacts of different riparian land use for Garcia River	6A	Verified temperature model capable of scenarios for canopy reduction, pool filling, etc.
Humboldt WMA (Freshwater Cr Elk River)	Stream channel assessments	5.1A, 5.1B, 5.3A, 6A, 6B	Evaluation of extent of aggradation with Cross-sections, thalweg profiles, width/depth ratios, V*, D50
Regional for 303(d) sediment impaired	Landslide Risk Assessment Methodology	N/A	Landslide risk assessment methodology for watersheds under timber management
Russian/Bodega WMA (Santa Rosa Creek)	Identify Sources of HVOCs in Santa Rosa Creek	3.3A	HVOC concentration data, source list and map
Russian/Bodega WMA (Roseland Creek)	GIS map layers of sources, monitoring wells, and groundwater pollution in McMinn Contamination Area	3.3A	GIS map layers of sources, wells, pollution extent
Russian/Bodega WMA (Americano Cr Watershed)	Watershed Management Plan for Americano Creek	1A, 1B, 1C, 1E, 1F	Watershed plan aimed at TMDL development and water quality improvements
Russian/Bodega WMA	Citizen Ammonia and Oxygen Monitoring	1C, 1F	Education/Outreach, baseline and trend data for screening problem areas
N. Coast Rivers WMA (Mattole River)	Monitoring, TMDL development and implementation planning	1E, 2, 5.3A, 6A, 6B	Data gathering and collection; watershed based strategy for a TMDL and implementation
Region-wide*	Watershed assessments and development of watershed plans in watersheds where TMDLs are pending in the next five years	5.1A, 5.1B, 5.3A, 2, 6A, 6B	Watershed plans aimed at TMDL development and water quality improvements
Region-wide*	Assessments and inventories of roads as sediment sources to streams in watersheds where sediment TMDLs are established or are pending in the next	1A, 2C, 2D, 3.5, 6A	An inventory of roads in need of restoration/repair or retirement and plans to implement those activities

Table 4AA: North Coast Region Targeted Projects for Potential Funding from NPS Planning

	five years		
--	------------	--	--

*Established TMDLs: So. Fork Trinity River, Redwood Creek, Garcia River, Laguna de Santa Rosa, Stemple Creek, Noyo River, So. Fork Eel River, Van Duzen River

Pending TMDLs: Ten Mile River, Navarro River, Trinity River, Albion River, Gualala River, Big River, Mattole River, Eel River, Klamath River, Salmon River, Scott River, Shasta River

Table 4C: Targeted projects for potential funding from US Department Of Agricultural, Natural Resources Conservation Service, Environmental Quality Incentives Program (EQIP)

Project Description	Geographic Location	Management Measures
Implementation of manure management practices at >100 dairies (irrigation systems, fencing, ponds, drainage, grazing management)	Russian/Bodega WMA	1A – 1G
Eradication of exotic bamboo, <i>Arundo donax</i> , at selected locations	Russian River Watershed	5.3A, 5.4A, 6A, 6B

TABLE 6: North Coast Region Key Partners

Existing or Potential Partner Agency:	MOU/MAA Title Content of potential/revised agreements:	Target date for review (existing) or adoption (potential):	Management Measure Categories:
Sonoma County and the South Park County Sanitation District (existing)	Plan of Action for HVOC Investigation and Mitigation in the Roseland Area	Monthly reports, Final Report 2/15/02	HVOC ground water plume, (maybe 3.3A)
Humboldt Bay Shellfish Technical Advisory Committee (includes: shellfish industries, local wastewater treatment plants, regulatory agencies, agricultural & environmental interests)	Regional Water Board Resolution No. 94-78 established the TAC per the Shellfish Protection Act of 1993. The purpose of the TAC is to advise and assist the Regional Water Board in developing an investigation and recommendation strategy to control pollution from commercial shellfish growing waters in Humboldt Bay and to pursue appropriate funding.	A report was submitted in May 1999 with recommendations. A bacteria study of runoff to the Bay is currently underway and funded by the State Water Resources Control Board.	4.2B (maybe 1B, 1C)

TABLE 7: PROPOSED SFY 2000/01 NONPOINT SOURCE RESOURCE ALLOCATION
(Includes activities for which funding has not been identified; Does not include
TMDL activities not funded by 319(h))

Task	Product	Management Measure(s)	Staff or Contract	Cost
Hillside vineyard outreach and enforcement	Fewer erosion sites	1A, E, G	Staff	\$220,000
Fish Friendly Farming certification	Basin Plan amendment		Staff	\$110,000
Dairy outreach		1B,C	Staff	\$110,000
Stemple Creek outreach and grant management	Fewer erosion sites	1A, E, G	Staff	\$55,000\$
Timber harvest plan review and inspection	Fewer erosion sites Improve riparian zone	2A-F, K	Staff	\$3.1 M
Maintain individual waste disposal systems program	Public health protection	3.4	Staff	\$33,000
Promote riparian zone restoration and channel morph considerations	Improved flood plain function Less stream bank erosion Less aggradation/degradation	1A, E 5.1, 5.2, 5.4A	Staff	\$55,000
NPS grant outreach and management	More NPS controls in place	5.4A	Staff	\$165,000
Monitor effectiveness of management practices to reduce erosion and sedimentation	More effective NPS program Improved ability to judge control mechanisms	1A, 2	Staff	\$110,000
Increase RCD coordination to address rangeland and confined animal runoff problems	Less erosion Improved riparian zones Lower water temperatures	1B, 1E, 1G	Staff	\$110,000
TMDL implementation in Noyo, S Fk Trinity, Redwood, Garcia, Eel, Van Duzen	Less erosion Compliance with TMDL Improved riparian zones Lower water temperatures	2, 5.1A, 5.1B, 6A, 6B	Staff	\$330,000
Perform nonpoint source inspections and follow-up	Increased awareness Enforcement of problems	1A-G, 2L, 3.6, 4.3, 5.4, 6D	Staff	\$220,000

STAFF COST – 1 PY = \$110,000

Contract cost is for the entire contract even if it is a multi-year contract.